SECTION 2.2

TRANSPORTATION/TRAFFIC

2.2 Transportation/Traffic

This Recirculated Section 2.2 Transportation/Traffic, is based on a revised Traffic Impact Analysis (Linscott Law and Greenspan (LLG) January 22, 2009) prepared since distribution of the Draft EIR for the Merriam Mountains project in August 2007. The revised Traffic Impact Analysis is included as Appendix M to this Recirculated EIR. Applicable information from this study is summarized below.

2.2.1 Discussion of Existing Conditions Relating to Transportation and Traffic

Below is a discussion of the current conditions at the study area's existing intersections, segments, and freeways. Figure 2.2-1 depicts the existing conditions within the study area.

Intersections

Following is a list of all intersections in the study area. The study area intersections are depicted in Figure 2.2-2.

a. Mountain Meadow Road/Champagne Boulevard
b. Deer Springs Road/I-15 NB Ramps
c. Deer Springs Road/I-15 SB Ramps
d. Deer Springs Road/Mesa Rock Road
e. Deer Springs Road/Twin Oaks Valley Road
f. Buena Creek Road/Twin Oaks Valley Road
g. Buena Creek Road/Monte Vista Road
h. Cassou Road/Twin Oaks Valley Road
i. Borden Road/Twin Oaks Valley Road
j. East Mission Road/Vineyard Road
k. San Marcos Boulevard/Twin Oaks Valley Road
l. SR 78 WB Ramps/Twin Oaks Valley Road
m. SR 78 EB Ramps/Twin Oaks Valley Road
n. San Marcos Boulevard/Knoll Road/SR 78 WB Ramps
o. San Marcos Boulevard/SR 78 EB Ramps
p. Merriam Mountains Parkway/Deer Springs Road
q. Meadow Park Lane/ Deer Springs Road
r. Buena Creek Road/South Santa Fe Avenue
s. Robelini Drive/South Santa Fe Avenue
t. Sycamore Avenue/SR78 WB Ramps
u. Sycamore Avenue/SR 78 EB Ramps

v. Gopher Canyon Road/I-15 NB Ramps
w. Gopher Canyon Road/I-15 SB Ramps
x. Champagne Boulevard /Gopher Canyon Road
y. Champagne Boulevard /Old Castle Road
z. Champagne Boulevard /Lawrence Welk Drive
aa. North Centre City Parkway/Mesa Rock Road
bb. North Centre City Parkway/Country Club Drive

Peak Hour Intersection Analysis

Table 2.2-1summarizes the existing peak hour study area signalized intersection operations. As seen in Table 2.2-1, all signalized intersections are calculated to currently operate at LOS D or better conditions.

Table 2.2-1 also summarizes the existing peak hour study area unsignalized intersection operations. As seen in Table 2.2-1, all unsignalized intersections are calculated to operate at LOS D or better except the following:

- I-15 SB Ramps/Gopher Canyon Road (LOS E in the AM and PM peak hour)
- I-15 NB Ramps/Gopher Canyon Road (LOS F in the PM peak hour)

Figure 2.2-3 depicts the peak hour turning movement volumes at the intersections located within the study area.

Roadway Segments

Following is a brief description of each study area roadway:

Deer Springs Road is classified as a Major Road (with bicycle network). Deer Springs Road is currently constructed as a two-lane roadway within the project study area. Parking is generally prohibited. The shoulders are unimproved. The posted speed limit is 45 mph from Twin Oaks Valley Road to Sarver Lane and 55 mph from Sarver Lane to Interstate 15 (I-15). No bike lanes are currently provided. The southern terminus of Deer Springs Road is at Twin Oaks Valley Road. The following sections of Deer Spring Road were included in the study area:

- Twin Oaks Valley Road to Meadow Park Lane
- Meadow Park Lane to Merriam Mountains Parkway
- Merriam Mountains Parkway to Mesa Rock Road
- Mesa Rock Road to I-15 SB Ramps

- I-15 SB Ramps to I-15 NB Ramps
- I-15 NB Ramps to Champagne Boulevard.

Twin Oaks Valley Road is classified as a Major Road north of Borden Road, and as a Prime Arterial south of Borden Road in the City of San Marcos Circulation Element. The following sections of Twin Oaks Valley Road were included in the study area:

- Solar Lane to Deer Springs Road
- Deer Springs Road to Buena Creek Road
- Buena Creek Road to Cassou Road
- Cassou Road to La Cienega Road
- La Cienega Road to Windy Way
- Windy Way to Borden Road
- Borden Road to Richmar Avenue
- Richmar Avenue to San Marcos Boulevard
- San Marcos Boulevard to SR 78 WB Ramps.

Twin Oaks Valley Road is currently constructed as a two-lane undivided roadway with a two-way left-turn lane and a 45 mph posted speed limit from Twin Oaks Valley Road to Cassou Road. The configuration of Twin Oaks Valley Road changes between Deer Springs Road and San Marcos Boulevard as described below:

- From Twin Oaks Crest Drive to Deer Springs Road, Twin Oaks Valley Road is constructed as a Two-Lane roadway.
- From Cassou Road to La Cienega Road, Twin Oaks Valley Road is constructed as a four-lane divided roadway with a two-way left-turn lane and a 45 mph posted speed limit.
- From La Cienega Road to Windy Way, Twin Oaks Valley Road is a four-lane divided roadway with a raised median and a 50 mph speed limit.
- From Windy Way to just north of Borden Road, Twin Oaks Valley Road is a two-lane undivided roadway with a center two-way-left-turn lane.
- From Borden Road to Richmar Avenue, Twin Oaks Valley Road is constructed as a two-lane undivided roadway with a two-way left-turn lane and a 50 mph posted speed limit.
- From Richmar Avenue to San Marcos Boulevard, Twin Oaks Valley Road is constructed as four-lane divided roadway with a raised median and a 45 mph speed limit.

- From San Marcos Boulevard to SR 78 WB Ramps, Twin Oaks Valley Road is a six-lane divided roadway with a raised median and a 40 mph speed limit. Bike lanes are provided in both directions of travel on Twin Oaks Valley Road, and parking is generally prohibited. Twin Oaks Valley Road is grade-separated at Mission Road, and a full interchange is present at State Route 78.

Currently, Twin Oaks Valley Road north of the intersection with Deer Springs Road is a public road up to approximately 1,900 feet north of Par Valley Drive. North of this point, Twin Oaks Valley Road is a private road with no public access. Figure 2.2-4 displays the sections for the existing conditions on Deer Springs Road and Twin Oaks Valley Road.

Buena Creek Road is classified as a Major Road (with bicycle network). Within the study area, Buena Creek Road is a rural two-lane roadway fronting farmland and residential property, with bike lanes and a 50 mph posted speed limit. The following sections of Buena Creek Road were included in the study area:

- S. Santa Fe to Monte Vista Drive
- Monte Vista Drive to Deer Springs Road.

Monte Vista Drive is a two-lane roadway in the County of San Diego Circulation Element. Curbside parking is generally not allowed, and the posted speed limit is 45 mph in the project vicinity. Specifically, Monte Vista Drive from Foothills Drive to Buena Creek Road was included in the study area.

Mesa Rock Road is an unclassified roadway in the County of San Diego Circulation Element. It is currently constructed as a two-lane undivided roadway. Parking is prohibited. There is no posted speed limit. Specifically, Mesa Rock Road from Deer Springs Road to North Centre City Parkway was included in the study area.

Champagne Boulevard is classified as a Collector Road and is part of the bicycle network in the County of San Diego's Circulation Element. Champagne Boulevard is currently constructed as a two-lane roadway within the project study area. Parking is generally prohibited. The shoulders are unimproved. Champagne Boulevard has rural characteristics. The posted speed limit is 55 mph. The following sections of Champagne Boulevard were included in the study area:

- Old Castle Road to Lawrence Welk Drive
- Lawrence Welk Drive to Mountain Meadow Road.

Lawrence Welk Drive is an unclassified roadway in the County of San Diego Circulation Element that is an existing underpass at I-15, connecting to Champagne Boulevard. It is currently

constructed as a two-lane undivided roadway. Parking is generally prohibited. There is no posted speed limit. Lawrence Welk Drive from Lawrence Welk Court to Champagne Boulevard was included in the study area.

North Centre City Parkway is classified as a Collector Road and is part of the bicycle network in the County of San Diego's Circulation Element. North Centre City Parkway is currently constructed as a two-lane roadway within the project study area. Parking is generally prohibited. The shoulders are unimproved. North Centre City Parkway has rural characteristics. The posted speed limit is 55 mph. The following sections of North Centre City Parkway were included in the study area:

- Mountain Meadow Road to I-15 Ramps
- I-15 Ramps to Country Club Lane.

Robelini Drive is currently constructed as a two-lane roadway. Curbside parking is not allowed. Robelini Drive provides access to residences and to South Santa Fe Avenue. The posted speed limit is 25 mph. Specifically, Robelini Drive from Sycamore Avenue to South Santa Fe Avenue was included in the study area.

South Santa Fe Avenue is classified as a Major Road in the County of San Diego's Circulation Element. South Santa Fe Avenue is currently constructed as a two-lane roadway with a center two-way left-turn lane. Parking is generally prohibited. The posted speed limit is 45 mph. Specifically, South Santa Fe Avenue from Woodland Drive to Buena Creek Road was included in the study area.

Sycamore Avenue is classified as a Major Road in the County of San Diego's Circulation Element. Sycamore Avenue is currently constructed as a six-lane divided roadway north of SR 78 and a four-lane divided roadway south of SR 78. Parking is generally prohibited. Curbs, gutters, and sidewalks are provided. The posted speed limit is 40 mph. Specifically, Sycamore Avenue from the SR 78 WB Ramps to University Drive was included in the study area.

Daily Segment Volumes

Figure 2.2-3 depicts the existing ADT segment volumes along key segments. The ADT volumes were obtained from counts commissioned by LLG and RBF Consulting (LLG Traffic Impact Analysis, January 22, 2009) between May 2007 and July 2008. Table 2.2-2 summarizes the existing ADT volumes.

Daily Segment Levels of Service (LOS)

Table 2.2-3 summarizes the existing study area roadway segment operations, including current LOS conditions. As seen in Table 2.2-3, the study area segments are calculated to currently operate at LOS D or better, except the following:

- Deer Springs Road from Twin Oaks Valley Road to Meadow Park Lane (LOS F)
- Deer Springs Road from Meadow Park Lane to Merriam Mountains Parkway (LOS F)
- Deer Springs Road from Merriam Mountains Parkway to Mesa Rock Road (LOS F)
- Deer Springs Road from Mesa Rock Road to I-15 SB Ramps (LOS F)
- Deer Springs Road from I-15 SB ramps to I-15 NB ramps (LOS E)
- Twin Oaks Valley Road from Deer Springs Road to Buena Creek Road (LOS E)
- Twin Oaks Valley Road from Buena Creek Road to Cassou Road (LOS E)
- Twin Oaks Valley Road from Windy Way to Borden Road (LOS F)
- Twin Oaks Valley Road Borden Rd. to Richmar Avenue (LOS F)
- Robelini Drive from Sycamore Avenue to South Santa Fe Avenue (LOS F)
- South Santa Fe Avenue from Woodland Drive to Buena Creek Road (LOS F).

Freeways

The following is a discussion of the study area's freeway segments.

Interstate 15 (I-15) is an eight-lane freeway that runs north/south in the vicinity of the project area. A full interchange is provided at Deer Springs Road. Ramp interchanges are provided at Centre City Parkway, Deer Springs Road, and Gopher Canyon Road within the project study area. The posted speed limit on I-15 in the project area is 70 mph. The diamond interchange at Deer Springs Road has recently been signalized. The sections of I-15 that are considered part of the study area are:

- Centre City Parkway to Deer Springs Road
- Deer Springs Road to Gopher Canyon Road.

State Route 78 is generally a six-lane east/west freeway connecting I-15 and I-5. Ramp interchanges are provided at Sycamore Avenue, San Marcos Boulevard, and Twin Oaks Valley Road within the project study area. The sections of SR 78 that are within the study area are:

- Mar Vista Drive to Sycamore Avenue
- Sycamore Avenue to San Marcos Boulevard
- San Marcos Boulevard to Twin Oaks Valley Road.

Intersection Lane Vehicle (ILV) Analysis

The freeway interchanges were analyzed using the ILV analysis methodology, in addition to the Highway Capacity Manual (HCM)-based methodology. Table 2.2-4 summarizes the results of the ILV analysis. As seen in Table 2.2-4, the Deer Springs Road/I-15 interchange is calculated to operate at under capacity in the AM and over capacity in the PM peak hours. The SR 78/Twin Oaks Valley Road intersection is calculated to operate under capacity in the AM and PM peak hour. The SR 78/San Marcos Boulevard interchange is calculated to operate near capacity in the AM peak hour and under capacity in the PM peak hour. The SR 78/Sycamore Avenue interchange is calculated to operate near capacity in the AM and PM peak hours.

Freeway Operations

Table 2.2-5 summarizes the existing freeway mainline operations on I-15 and SR 78. As seen in Table 2.2-5, the mainline I-15 segment between Centre City Parkway and Deer Springs Road is calculated to operate at LOS C or better in the southbound and northbound directions during the AM and PM peak hours. The mainline segment of I-15 between Deer Springs Road and Gopher Canyon Road is calculated to operate at LOS C or better in the southbound and northbound directions during the AM and PM peak hours.

The mainline segment of SR 78 between Mar Vista Drive and Sycamore Avenue is calculated to operate at LOS F(0)[1] in the eastbound and westbound direction during the PM peak hour and LOS E in the westbound direction during the AM peak hour. The mainline segment of SR 78 between Sycamore Avenue and San Marcos Boulevard is calculated to operate at LOS E in the westbound direction during the PM and AM peak hours and LOS F(0)[1] in the eastbound direction during the PM peak hour.

Ramp Meter Operations

The following ramp meter locations where the project adds more than 20 project-generated trips were analyzed:

- Southbound San Marcos Boulevard to westbound SR 78

- Southbound Twin Oaks Valley Road to westbound SR 78
- Southbound Sycamore Avenue to westbound SR 78.

Table 2.2-6 summarizes the existing ramp meter operations at the above locations. As seen in Table 2.2-6, the Twin Oaks Valley Road to westbound SR 78 and the southbound Sycamore Avenue to westbound SR 78 on ramps are calculated to operate above capacity.

2.2.2 Guidelines for the Determination of Significance

The project study area includes facilities within the jurisdiction of the County of San Diego, the City of San Marcos, the City of Escondido, the City of Vista, and the California Department of Transportation (Caltrans). The significance criteria from these jurisdictions were considered when determining the significance of impacts resulting at each of the roadways/intersections.

County of San Diego

It should be noted that the Public Facilities Element of the County of San Diego General Plan and relevant portions of CEQA Guidelines Appendix G were used as criteria for determining significant impacts for the portion of the circulation system within the County of San Diego. The Public Facilities Element provides the fundamental County standards for acceptable traffic LOS, as describer further in the table below.

The significance guidelines are based on the County's 1993 Public Facilities Element, which requires that new development that "would significantly" impact congestion on roads at LOS E or F, either currently or as a result of the project, will be denied unless improvements are scheduled to improve the LOS to LOS D. Therefore the San Diego County Guidelines for Determining Significance (2006) state that a significant impact would occur if the project would either: (a) reduce the level of service below D on off-site and on-site abutting intersections or segments of circulation element roads, or (b) significantly impact congestion on such roads that are currently operating at a level of service E or F.

The guidelines indicate that the table below is to be used to determine if the project generates congestion that would "significantly impact" a facility. This guideline is also used to determine whether cumulative impacts would be significant.

Measures of Significant Project Impacts to Congestion on Road Segments

	ROAD SEGMENTS– allowable increases		
	2-Lane Road	**4-Lane Road**	**6-Lane Road**
LOS E	200 ADT	400 ADT	600 ADT
LOS F	100 ADT	200 ADT	300 ADT
	INTERSECTIONS– allowable increases		
	Signalized		**Unsignalized**
LOS E	Delay of 2 seconds		20 peak hour trips on a critical movement
LOS F	Delay of 1 second, or 5 peak hour trips on a critical movement		5 peak hour trips on a critical movement

The ADT thresholds noted in the table above were utilized to determine the significance of impact to road segments currently operating at LOS E or F because they are considered to be noticeable to the average driver in terms of roadway congestion. If the addition of project-only traffic would result in a noticeable increase in congestion, that effect would be considered a direct significant impact. In order to determine whether intersection delays would be significant, delay thresholds of two seconds, where an intersection operates at LOS E and one second (or five peak hour trips on a critical movement), where an intersection operates at LOS F, were utilized. These delays, although small, reflect the fact that current delays are already long. In addition, most peak hour users are engaged in routine delay driving patterns and are well acquainted with existing conditions and sensitive to potential change. It is anticipated that those delays would be noticeable to the average driver. As for road segments, if the addition of project-only traffic would result in a noticeable increase in congestion, that effect would be considered a significant impact. In order to determine whether impacts would be significant at unsignalized intersections, a total of 20 peak-hour trips on a critical movement at LOS E and 5 peak-hour trips on a critical movement at LOS F was considered noticeable to the average driver in terms of roadway congestion.

City of San Marcos, City of Vista, and City of Escondido

The City of San Marcos, City of Vista, and City of Escondido use criteria similar to the regional SANTEC/ITE thresholds for determining significance. The criteria assess impacts based on change in delay at intersections or volume to capacity ratio (V/C) on segments. Cumulative impacts to a failing location may be found not to be cumulatively considerable if the project's delay or V/C increase is less than the thresholds defined in the criteria. These thresholds were also used for Caltrans freeways and ramp meters, as indicated in the table below.

Traffic Impact Significance Thresholds						
Level of Service with Project[a]	Allowable Increase Due to Project Impacts[b]					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E & F (*or ramp meter delays above 15 minutes*)	0.01	1	0.02	1	2	2c

[a] All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for roadway segments may be estimated on an ADT per 24-hour traffic volume basis. The acceptable LOS for freeways, roadways, and intersections generally is D, including the City of San Marcos (C for undeveloped or not densely developed locations per jurisdiction definitions). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

[b] If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are deemed to be significant. These impact changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible mitigations (within the Traffic Impact Analysis) that will maintain the traffic facility at an acceptable LOS. If the LOS for a proposed project becomes unacceptable (see note a above), or if a project adds a significant amount of peak hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating significant impact changes.

V/C = volume to capacity ratio
Speed = Arterial speed measured in miles per hour
Delay = Average stopped delay per vehicle measured in seconds for intersections, or minutes for ramp meters.
LOS = level of service
Source: LLG 2009

2.2.3 Analysis of Project Effects and Determination of Significance

Trip Generation

Table 2.2-7 summarizes the trip generation for the proposed project. SANDAG trip generation rates were utilized to determine the amount of traffic the project will generate. As seen in Table 2.2-8, the project is calculated to generate a total of 35,518 daily trips, with 2,358 trips (758 inbound and 1,600 outbound trips) in the AM peak hour and 3,535 trips (2,232 inbound and 1,303 outbound trips) in the PM peak hour.

Trip Distribution/Assignment

Separate SANDAG Select Zone Assignments (SZA)s were obtained for the proposed residential land uses and the commercial/retail land uses. Trip distribution percentages were also generated based on site access parameters, roadway system characteristics (i.e., project's proximity to I-15), and existing traffic turning movement counts separately, for the residential and the commercial/retail land uses. Figures 2.2-5 and 2.2-6 depict the estimated traffic distribution for the residential and commercial/retail land uses, respectively.

The Select Zone analysis referenced above indicates approximately 1 percent project traffic on Gopher Canyon Road. In addition, no direct access to Twin Oaks Valley Road is planned, and

therefore project traffic will not be able to access Twin Oaks Valley Road directly in order to access Gopher Canyon Road. Once Twin Oaks Valley Road is improved and connected between Deer Springs Road and Gopher Canyon Road, it is expected that about 5 percent of the project traffic will utilize this route. This will have a positive impact on the parallel section of I-15 between Deer Springs Road and Gopher Canyon Road.

The traffic generated by the commercial/retail and the residential land uses was distributed and assigned to the street system based on the distribution percentages shown in Figures 2.2-5 and 2.2-6, respectively. The residential traffic was distributed relative to the location of the units with respect to the project access points. All the commercial traffic was assigned to Merriam Mountains Parkway, since the commercial development is located at this roadway. The traffic generated by the various neighborhoods was distributed individually in order to calculate the most accurate possible traffic assignment.

The distribution percentages indicated in the SZA were slightly modified to improve accuracy and to be conservative. For instance, the SZA shows a large amount of trips captured before leaving the immediate project site boundary. The traffic study assumes longer trip lengths. Below are discussions of the traffic generated by each neighborhood.

Neighborhood 1 – Commercial

Neighborhood 1 is located just north of Deer Springs Road along Merriam Mountain Parkway. Traffic generated by the proposed commercial land uses within Neighborhood 1 is assumed to use the Deer Springs Road/Merriam Mountain Parkway intersection as the primary access. A westbound-only, one-way roadway connection is planned to connect Mesa Rock Road and Merriam Mountain Parkway. It is assumed that a large amount of the eastbound traffic will utilize this one-way road to access the commercial/retail.

Neighborhoods 1 and 3 – Residential

Neighborhoods 1 and 3 are located just north of Deer Springs Road along Merriam Mountain Parkway. Traffic generated by the proposed residential land uses within Neighborhoods 1 & 3 is primarily assumed to use the Deer Springs Road/Merriam Mountain Parkway intersection as the primary access. However, the westbound inbound traffic is expected to utilize the one-way roadway connection between Mesa Rock Road and Merriam Mountain Parkway. Outbound traffic is expected to utilize the Deer Springs Road/Merriam Mountain Parkway intersection.

Neighborhood 2 – Residential

Neighborhood 2 is located just north of Deer Springs Road along Meadow Park Lane. Traffic generated by the proposed residential land uses within Neighborhood 2 is assumed to use the Deer Springs Road/Meadow Park Lane intersection as the primary access.

Neighborhoods 4 and 5 – Residential

Neighborhoods 4 and 5 are located along Merriam Mountain Parkway just north of Meadow Park Lane. The two access roadways along Merriam Mountain Parkway and Meadow Park Lane are equally convenient to use. It is therefore assumed that traffic oriented to the east will use Merriam Mountain Parkway and traffic oriented to the west will utilize Meadow Park Lane as the primary access. It was also assumed that a majority of the traffic oriented towards I-15 to the north will utilize Lawrence Welk Court to Lawrence Welk Drive.

Figure 2.2-7 depicts the project residential trip assignment based on the estimated distribution (Figure 2.2-5). Figure 2.2-8 depicts the project commercial/retail trip assignment based on the estimated distribution (Figure 2.2-6). Figure 2.2-9 depicts the total project traffic assignment (Figure 2.2-7 + Figure 2.2-8). The existing + total project traffic volumes, including both commercial and residential uses, are shown in Figure 2.2-10 (Figure 2.2-1 + Figure 2.2-9).

Direct Impacts

Direct Intersection Impacts (Existing + Project)

Table 2.2-8 summarizes the existing + project peak hour study area signalized intersection operations. As seen in Table 2.2-8, with the addition of project traffic, all intersections are calculated to operate at LOS D or better except the following. Significant impacts are identified at these locations:

1) I-15 NB Ramps/Deer Springs Road (LOS F in the PM peak hour) (Impact TR-1)
2) I-15 SB Ramps/Deer Springs Road (LOS E in the PM peak hour) (Impact TR-2)
3) Mesa Rock Road/Deer Springs Road (LOS F in the AM and PM peak hours) (Impact TR-3)
4) Twin Oaks Valley Road/Deer Springs Road (LOS E in the PM peak hour) (Impact TR-4)
5) Twin Oaks Valley Road/Buena Creek Road (LOS E in the PM peak hour) (Impact TR-5)

6) Monte Vista Road/Buena Creek Road (LOS F in the AM and PM peak hours) (Impact TR-6)

7) Merriam Mountains Parkway/Deer Springs Road (LOS F in the AM and PM peak hours) (Impact TR-7)

8) Meadow Park Lane/Deer Springs Road (LOS E in the AM peak hour) (Impact TR-8)

9) I-15 SB Ramps/Gopher Canyon Road (LOS E in the AM and PM peak hours) (Impact TR-9)

10) I-15 NB Ramps/Gopher Canyon Road (LOS F in the PM peak hour) (Impact TR-10)

Direct Segment Impacts (Existing + Project)

Table 2.2-9 summarizes the existing + project study area roadway segment operations. As seen in Table 2.2-9, all study area segments are calculated to operate at LOS D or better conditions except the following:

11) Deer Springs Road from Twin Oaks Valley Road to Meadow Park Lane (LOS F) (Impact TR-11)

12) Deer Springs Road from Meadow Park Lane to Merriam Mountains Parkway (LOS F) (Impact TR-12)

13) Deer Springs Road from Merriam Mountains Parkway to Mesa Rock Road (LOS F) (Impact TR-13)

14) Deer Springs Road from Mesa Rock Road to I-15 SB Ramps (LOS F) (Impact TR-14)

15) Deer Springs Road from I-15 SB Ramps to I-15 NB Ramps (LOS F) (Impact TR-15)

16) Twin Oaks Valley Road from Deer Springs Road to Buena Creek Road (LOS F) (Impact TR-16)

17) Twin Oaks Valley Road from Buena Creek Road to Cassou Road (LOS F) (Impact TR-17)

18) Twin Oaks Valley Road from Borden Road to Richmar Avenue (LOS F) (Impact TR-18)

19) Buena Creek Road from South Santa Fe Avenue to Monte Vista Drive (LOS E) (Impact TR-19)

20) Buena Creek Road from Monte Vista Drive to Deer Springs Road (LOS E) (Impact TR-20)

21) Robelini Drive from Sycamore Avenue to South Santa Fe Avenue (LOS F) (Impact TR-21)

22) South Santa Fe Avenue from Woodland Drive to Buena Creek Road (LOS F) (Impact TR-22)

23) Twin Oaks Valley Road between Windy Way and Borden Road (LOS F) (Impact TR-23)

Direct Freeway Impacts (Existing + Project)

ILV Analysis – Table 2.2-10a summarizes the results of the ILV analysis. As seen in Table 2.2-10a, with the addition of project traffic, the Deer Springs Road/I-15 interchange is calculated to operate over capacity in the AM and PM peak hours. The SR 78/Twin Oaks Valley Road intersection is calculated to continue to operate under capacity in the AM and PM peak hours. The SR 78/San Marcos Boulevard interchange is calculated to operate under capacity in the AM peak hour and near capacity in the PM peak hour. The SR 78/Sycamore Avenue interchange is calculated to continue to operate near capacity in the AM and PM peak hours.

Freeway Mainline Operations – Table 2.2-10b summarizes the existing + project freeway mainline operations on I-15 and SR 78. As seen in Table 2.2-10b, with the addition of project traffic, the following freeway segments are calculated to operate at worse than LOS D:

24) SR 78 between Mar Vista Drive and Sycamore Avenue (LOS F(0) in the westbound direction during the AM peak hour, and LOS F(0) in both directions during the PM peak hour) (Impact TR-24)

25) SR 78 between Sycamore Avenue and San Marcos Boulevard (LOS E in the westbound direction during the AM peak hour and LOS F(0) in the eastbound direction and LOS E in the westbound direction during the PM peak hour) (Impact TR-25)

Freeway On-Ramp Operations – As explained in the Existing Conditions discussion, this study analyzes southbound San Marcos Boulevard to westbound SR 78, southbound Twin Oaks Valley Road to westbound SR 78, and southbound Sycamore Avenue to westbound SR 78. Table 2.2-11 summarizes the near-term ramp meter operations. As seen in Table 2.2-11, with the addition of project traffic, the southbound San Marcos Boulevard on ramp to westbound SR 78 is calculated to operate under capacity. The Southbound Twin Oaks Valley Road on ramp to westbound SR 78 is calculated to operate above capacity with an increase of 5 and 3 minutes in the delay respectively during the AM and PM peak hours, and the southbound Sycamore Avenue on ramp to westbound SR 78 is calculated to operate above capacity with an increase of 4 minutes in the delay during the PM peak hour (Impact TR-26). Therefore impacts are significant.

26) Sycamore Avenue/SR 78 WB on-ramp (Impact TR-26)

2.2.4 Cumulative Impact Analysis

As part of the Transportation/Traffic Technical Report, LLG conducted thorough research to determine the cumulative projects in the project vicinity contributing traffic to the study area intersections and segments (see Figures 2.2-11 and 2.2-12). This research originally revealed a total of 132 cumulative projects in the project vicinity (for details see Traffic Impact Analysis, Merriam, LLG, December 11, 2008).

The cumulative project list includes probable future projects in close proximity to the study area boundary, which have been evaluated to assess whether they may have a cumulatively considerable impact on traffic within the study area. The cumulative analysis also incorporates a 5-percent growth factor to accommodate new project activity that may occur between initiation of the updated cumulative traffic study and hearings on the Merriam Mountains project.

The boundary for the cumulative project study area was determined using County of San Diego guidelines as set forth in the December 5, 2007, "Transportation and Traffic Report Format and Content Requirements." These guidelines generally apply to establishing the boundaries for the traffic impact study for the analysis of direct, indirect, and cumulative impacts. Consistent with these guidelines, "All full traffic impact studies shall include a cumulative traffic assessment that evaluates the near-term cumulative traffic impacts of the proposed project. The scope of the full cumulative traffic assessment shall include those roads and intersections that will receive 25 peak hour trips."

Applying the criteria as stated above to the circulation network surrounding the Merriam Mountains project, the traffic impact study area was set as the area bound by Gopher Canyon Road to the north, Broadway (extended) to the east, SR 78 to the south, and the theoretical northbound extension of the SR 78/Sycamore Avenue interchange to the west. For the updated cumulative analysis, probable future projects were identified that would contribute traffic generated trips within the traffic impact study area and a cumulative project list was developed. Figure 1.6-1 depicts this area graphically. Probable future projects within this boundary were included as cumulative projects.

The cumulative project list also evaluates projects in close proximity to the study area to determine, based on the size of the project, if trips would be distributed within the study area that would impact intersections and/or roadway segments. It should be noted that project entitlement and development is a dynamic process, and the status of some of these projects has likely changed since the original cumulative projects list was developed—some projects may have been constructed or approved or were not as active as they were at the time the cumulative project list was developed. A screening analysis was conducted to evaluate which, if any, of these projects have already been constructed and would therefore be included in any updated traffic counts that

were included in the revised Traffic Impact Analysis per the updated traffic counts completed in 2007 and 2008. This screening analysis ensured that traffic generated by these projects is not double-counted.

Cumulative Intersection Impacts (Existing + Project + Cumulative)

Improvements to mitigate direct project impacts were assumed as the base condition for the existing + project + cumulative projects scenario. Therefore, all key study area intersections operate at an acceptable LOS and delay before the addition of cumulative projects traffic (Table 2.2-12. Improvements to mitigate impacts, including the installation of traffic signals and/or improvements to intersection geometry, are assumed to be implemented at the following intersections for the existing + project + cumulative projects scenario:

- I-15/Gopher Canyon Road SB Ramps
- I-15/Gopher Canyon Road NB Ramp
- Merriam Mountain Road / Deer Springs Road
- Meadow Park Lane / Deer Springs Road
- I-15 NB Ramps / Deer Springs Road
- I-15 SB Ramps / Deer Springs Road
- Mesa Rock Road / Deer Springs Road
- Twin Oaks Valley Road / Deer Springs Road
- Twin Oaks Valley Road / Buena Creek Road
- Monte Vista Road/Buena Creek Road.

Table 2.2-12 summarizes the existing + project + cumulative projects peak-hour operations. As seen in Table 2.2-12, all study area intersections are calculated to operate at LOS D or better except the following intersections. Cumulative impacts are calculated at these locations:

27) Mountain Meadows Road/Champagne Boulevard (LOS E during the PM peak hour) (Impact TR-27)

28) Twin Oaks Valley Road/Cassou Road (LOS F during the AM and PM peak hours) (Impact TR-28)

29) Twin Oaks Valley Road/Borden Road (LOS F during the AM and PM peak hours) (Impact TR-29).

Since the project adds less than two seconds of delay to each of the following poorly operating locations, a significant impact would not result based on the significance criteria:

- Twin Oaks Valley Road/San Marcos Boulevard (LOS F during the AM and PM peak hours)
- Twin Oaks Valley Road/SR 78 Westbound Ramps (LOS F during the PM peak hour)
- Twin Oaks Valley Road/SR 78 Eastbound Ramps (LOS E during the AM and LOS F during the PM peak hour)
- San Marcos Boulevard/Knoll Road/SR 78 Westbound Ramps (LOS E during the AM and LOS F during the PM peak hours)
- Sycamore Avenue/SR 78 EB Ramps (LOS E during the AM peak hour).

Cumulative Roadway Segment Impacts (Existing + Project + Cumulative)

Improvements to mitigate direct project impacts were assumed as the base condition for the existing + project + cumulative projects scenario. All key study area segments operate at an acceptable LOS before the addition of cumulative projects traffic (Table 2.2-13).

Table 2.2-13 summarizes the existing + project + cumulative projects study area roadway segment operations. As seen in Table 2.2-13, the study area segments are calculated to operate at LOS D or better conditions, except the following segments, where the cumulative projects cause the LOS to deteriorate to worse than LOS D:

30) Twin Oaks Valley Road between La Cienega Road and Windy Way (LOS E) (Impact TR-30)

31) Twin Oaks Valley Road between Windy Way and Borden Road (LOS E) (Impact TR-31)

32) Twin Oaks Valley Road between Borden Road and Richmar Avenue (LOS F) (Impact TR-32)

33) Twin Oaks Valley Road from Richmar Avenue to San Marcos Boulevard (LOS F) (Impact TR-33)

34) Twin Oaks Valley Road between San Marcos Boulevard and SR 78 WB Ramps (LOS F) (Impact TR-34)

35) Buena Creek Road from South Santa Fe Avenue to Monte Vista Drive (LOS F) (Impact TR-35)

36) Buena Creek Road from Monte Vista Drive to Deer Springs Road (LOS F) (Impact TR-36)

37) Monte Vista Drive from Foothills Drive to Buena Creek Road (LOS E) (Impact TR-37)

38) Robelini Drive from Sycamore Avenue to South Santa Fe Avenue (LOS F) (Impact TR-38)

Cumulative Freeway Impacts (Existing + Project + Cumulative)

Intersection Lane Vehicles Analysis – The freeway interchanges were analyzed using the ILV analysis methodology, in addition to the peak hour intersection analysis methodology. Table 2.2-10a summarizes the results of the ILV analysis. As seen in Table 2.2-10a, with the addition of project and cumulative projects traffic, the Deer Springs Road/I-15 interchange is calculated to continue to operate over capacity in the AM and PM peak hours. The SR 78/Twin Oaks Valley Road intersection is calculated to operate over capacity in the AM and PM peak hours. The SR 78/San Marcos Boulevard interchange is calculated to operate near capacity in the AM peak hour and over capacity in the PM peak hour. The SR 78/Sycamore Avenue interchange is calculated to operate near capacity in the AM peak hour and over capacity in the PM peak hour.

Freeway Mainline Operations – Table 2.2-14 summarizes the existing + project + cumulative projects freeway mainline operations on I-15 and SR 78. As seen in Table 2.2-14, with the addition of project and cumulative projects traffic, the following study area freeway segments are calculated to operate at worse than LOS D; therefore, impacts would be significant.

39) I-15 between Centre City Parkway and Deer Springs Road (LOS E in the northbound direction during the PM peak hour) (Impact TR-39)

40) SR 78 between Mar Vista Drive and Twin Oaks Valley Road (LOS E, F(0), F(1), and F(2)) (Impact TR-40).

Freeway On-Ramp Operations – Table 2.2-11 summarizes the near-term ramp meter operations. As seen in Table 2.2-11, with the addition of project and cumulative projects traffic, the southbound San Marcos Boulevard, southbound Twin Oaks Valley Road, and southbound Sycamore Avenue on-ramps to westbound SR 78 are all calculated to operate at over capacity, with delays ranging from 2 to 32 minutes. The southbound Sycamore Avenue on-ramp to westbound SR 78 and southbound Twin Oaks Valley Road on-ramp to westbound SR 78 are calculated to operate above capacity with further increases in delay. Therefore, these impacts are considered to be cumulatively significant.

41) Sycamore Avenue/SR 78 WB on-ramp (Impact TR-41).

42) Twin Oaks Valley Road/SR 78 WB on-ramp (Impact TR-42).

2.2.5 Year 2030 Analysis

A Horizon Year (Year 2030 Analysis) was completed to identify future conditions associated with traffic on the circulation network. The 2030 analysis utilized a SANDAG model forecast to identify the circulation network upgrades that would be necessary due to proposed project land uses being more traffic intense than those reflected in the existing General Plan Land Uses.

Per the County's 1993 Public Facilities Element and most recent amendment approved on October 15, 2008, a buildout analysis should be done based on the SANDAG regional traffic forecast. A model run was conducted with and without the proposed project to demonstrate the net change to the regional transportation system. A traffic model was obtained from SANDAG, entitled "SANDAG County of San Diego General Plan Update Spinoff Forecast (September 2008)." The model has been developed over time as part of the General Plan Update process and reflects the most accurate information available to model projected traffic volumes, including the current adopted Circulation Elements for both the City of Escondido and the City of San Marcos. The traffic model was used to determine the projected traffic volumes on Deer Springs Road and nearby roadways from projected in the Horizon Year.

Year 2030 with Existing General Plan Project Land Uses

A traffic model was obtained from SANDAG containing existing General Plan land uses for the site, as summarized in Table 2.2-15. The network assumptions match the existing County Circulation Element, except for Deer Springs Road, which has been classified as a six-lane roadway; and the Buena Creek Road extension, which was deleted consistent with the GPA/CE being proposed (see Chapter 9). Figure 2.2–13 depicts the Year 2030 with the Existing General Plan Land Uses (on the project site) segment volumes.

Year 2030 with Proposed Project

A second traffic model was obtained from SANDAG with the Merriam Mountains Project coded within the project site. The only change to the model was to input the proposed project exactly as proposed. No other changes to the network or land uses were made. Figure 2.2-14 depicts the Year 2030 with proposed project land uses segment volumes.

In the "Reasonably Expected" Year 2030 Mobility Plan, it is planned to provide two carpool lanes in each direction on I-15 by the Year 2030. The carpool lanes are assumed to have a capacity of 1,200 vehicles per hour per lane (veh/hr/ln). Therefore, the capacity of I-15 will be

10,400 vehicles per hour (four all-purpose lanes with a capacity of 2,000 veh/hr/ln, and two carpool lanes with a capacity of 1,200 veh/hr/ln).

Table 2.2-15 contains a trip generation comparison between the Existing General Plan lands uses (on the project site) to the proposed project land uses.

Year 2030 Segment Operations

The Year 2030 analysis assumes that the study area roads are built to their Circulation Element classifications.

With General Plan/Existing Land Uses (for project site)

Table 2.2-16 summarizes the Year 2030 General Plan/ land uses study area roadway segment operations. As seen in Table 2.2-16, the following segments are calculated to operate at LOS E or worse.

- Deer Springs Road from Mesa Rock Road to I-15 SB Ramps (LOS E)
- Deer Springs Road I-15 SB Ramps to I-15 NB Ramps (LOS E)
- Deer Springs Road I-15 NB Ramps to Champagne Boulevard (LOS E)
- Mountain Meadow Road, east of Champagne Boulevard (LOS F)
- Twin Oaks Valley Road from Deer Springs Road to Buena Creek Road (LOS F).

The remaining study area segments are calculated to operate at LOS D or better.

With Proposed Project Land Uses (for project site)

The "Existing General Plan" operations were compared to the "With Merriam Project" operations to determine any potential "plan-to-plan impacts." As seen in Table 2.2-16, the following segments are calculated to operate at LOS E or worse.

- Deer Springs Road from Mesa Rock Road to I-15 SB Ramps (LOS E)
- Deer Springs Road from I-15 SB Ramps to I-15 NB Ramps (LOS F)
- Deer Springs Road from I-15 NB Ramps to Champagne Boulevard (LOS E)
- Mountain Meadow Road East of Champagne Boulevard LOS F)
- Twin Oaks Valley Road from Deer Springs Road to Buena Creek Road (LOS F)

The remaining study area segments are calculated to operate at LOS D or better.

As seen above all roadway segments would operate at the same LOS under the existing General Plan Update land uses in comparison with proposed project land uses with the exception of Deer Springs Road from I-15 SB Ramps to I-15 NB Ramps. This roadway segment would operate at LOS E with existing General Plan Update land uses and LOS F with proposed project land uses.

Year 2030 Freeway Operations

With General Plan/Existing Land Uses

Table 2.2-17 summarizes the Year 2030 with the proposed project freeway mainline operations on I-15 and SR 78. As seen in Table 2.2-17, the following study area freeway segments are calculated to operate at LOS E or worse conditions.

- I-15 between Centre City Parkway and Deer Springs Road (LOS F(3) in the southbound direction during the AM peak hour, and LOS F(3) in the northbound direction during the PM peak hour)
- I-15 between Deer Springs Road and Gopher Canyon Road (LOS F(3) in the southbound direction during the AM peak hour, and LOS F(3) in the northbound direction during the PM peak hour)
- SR 78 between Mar Vista Drive and Sycamore Avenue (LOS F(0) in the eastbound direction during the AM and PM peak hour, and LOS E in the westbound direction during the PM peak hour)
- SR 78 between Sycamore Avenue and San Marcos Boulevard (LOS F(0) in both directions during the AM peak hour and in the westbound direction during the PM peak hour, and LOS F(1) in the eastbound direction during the PM peak hour)
- SR 78 between San Marcos Boulevard and Twin Oaks Valley Road (LOS F(2) in the eastbound direction and LOS F(0) in the westbound direction during the AM peak hour, LOS F(3) in the eastbound direction and LOS F(1) in the westbound direction during the PM peak hour).

With Proposed Project Land Uses

Table 2.2-17 summarizes the Year 2030 with Existing General Plan (for the project site) land uses freeway mainline operations on I-15 and SR 78. As seen in Table 2.2-17, the following study area freeway segments are calculated to operate at LOS E or worse conditions.

- I-15 between Centre City Parkway and Deer Springs Road (LOS F(3) in the southbound direction during the AM peak hour, and LOS F(3) in the northbound direction during the PM peak hour)

- I-15 between Deer Springs Road and Gopher Canyon Road (LOS F(3) in the southbound direction during the AM peak hour, and at LOS F(3) in the northbound direction during the PM peak hour)
- SR 78 between Mar Vista Drive and Sycamore Avenue (LOS F(0) in the eastbound direction during both the AM and PM peak hours, and LOS E in the westbound direction during the PM peak hour)
- SR 78 between Sycamore Avenue and San Marcos Boulevard (LOS F(0) in both directions during both the AM peak hour and in the westbound direction during the PM peak hour, and LOS F(1) in the eastbound direction during the PM peak hour)
- SR 78 between San Marcos Boulevard and Twin Oaks Valley Road (LOS F(2) in the eastbound direction and LOS F(0) in the westbound direction during the AM peak hour, LOS F(3) in the eastbound direction and LOS F(1) in the westbound direction during the PM peak hour).

As seen above all freeway operations would operate at the same LOS with both the Existing General Plan land uses for the project site and Proposed Project land uses.

2.2.6 Other Impacts

Internal Circulation

An analysis of the internal segments was conducted to determine the adequacy of the planned internal roadway system. A detailed review of the internal street characteristics using the complete plan set was conducted to assist in determining the appropriate capacity of the internal roads. Each internal roadway section was evaluated individually. Table 2.2-18 summarizes the total estimated project traffic on the four project access roadways. As seen in Table 2.2-18, the typical County roadway LOS E capacity was manually adjusted downward to account for some features not associated with that classification that are proposed for the internal streets. These features include the following:

- Horizontal curves with radi of 300 feet on the four-lane section of Merriam Mountains Parkway immediately north of Deer Springs Road. However, the vast majority of curves will have a radius of 500 feet or greater.
- Horizontal curves with 200-foot radi are provided on Lawrence Welk Court.
- Some of the horizontal curves on Meadow Park Lane have a 300-foot radius.
- A grade of 9.5 percent is proposed on one section of Merriam Mountains Parkway

While lower capacities were estimated based on the above planned designs, the following were considered:

- The internal streets within the Merriam Mountains project are not circulation element streets and will not be used as through streets by the general public.
- Most of the people using these streets will be familiar with the driving conditions and will in time gain a degree of comfort driving on these streets.
- Side street friction will be very little, with no curbside parking proposed and limited stops for major street traffic.

As seen in Table 2.2-18, with the reduced capacities, all project access roads are calculated to operate at an acceptable LOS. Therefore, the planned access roadways and the internal circulation are determined to be adequate from a roadway capacity perspective.

As shown on Figure 1.1-13, access to the SP area is provided from Deer Springs Road at two locations: Merriam Mountains Parkway and Meadow Park Lane. Merriam Mountains Parkway is planned as a dual 28-foot divided road at the southern entrance, transitioning to a dual 24-foot divided road and 52-foot undivided road and then to a 36-foot undivided road near its intersection with Meadow Park Lane. Figure 2.2-15 shows a cross section of Merriam Mountains Parkway at the southeast portion of the property near I-15. Meadow Park Lane will transition from a dual 24-foot divided road at its intersection with Deer Springs Road, approximately 1.4 miles west of I-15 (see Figure 2.2-15), to a 48-foot undivided road from the northern boundary of the off-site easement area until its intersection with Merriam Mountains Parkway. All roadways within the project site will be public, except for Lawrence Welk Lane and Camino Mayor. Design of internal roadways will be in conformance with the design standards general requirements, and drainage requirements included in the County of San Diego Department of Public Works' *Public Road Standards*.

Project Driveway Queuing Analysis

A queuing analysis was conducted to forecast the peak hour queues at the two project driveways on Deer Springs Road. These predicted queues will be used to determine the turn lane storage lengths required to accommodate turning traffic at the traffic signal. Table 2.2-19 summarizes the results of the queuing analysis for the mitigated existing + project + cumulative projects' condition. The recommended mitigations at these intersections are listed in Section 2.2.6. As seen in Table 2.2-19, the maximum anticipated queue length in the westbound direction is 225 feet in the right-turn movement at the Deer Springs Road/Merriam Mountains Parkway intersection. In the eastbound direction, the maximum anticipated queue length is 150 feet in the left-turn movement at the Deer Springs Road/Merriam Mountains Parkway intersection. In the

southbound direction, the maximum calculated queue is 450 feet in the left-turn movement and 125 feet in the right-turn movement.

The maximum anticipated queue length in the westbound direction is 175 feet in the right-turn movement at the Deer Springs Road/Meadow Park Lane intersection. In the eastbound direction, the maximum anticipated queue length is 175 feet in the left-turn movement at the Deer Springs Road/ Meadow Park Lane intersection. In the southbound direction, the maximum calculated queue is 175 feet in the right-turn movement and 200 feet in the left-turn movement.

Cut-Through

The project's internal roadways will provide a connection from Champagne Boulevard to Deer Springs Road, which could be utilized by non-project traffic. However, Lawrence Welk Court has been designed to be a circuitous roadway, which will discourage cut-through traffic. The travel time was estimated to determine the convenience of vehicles utilizing this route compared to continuing south on I-15 to Deer Springs Road.

Based on the information available, the estimated travel time from the Gopher Canyon/ Champagne Boulevard intersection through the project site to the Meadow Park Lane/Deer Springs Road intersection would be approximately 9 minutes. Table 2.2-20 shows the estimated travel time on each segment. Considering the estimated travel time, mountainous terrain, low speed limits, and unfamiliarity of the route, it is assumed that this route would not be used except on rare occasions to access Deer Springs Road as a bypass from I-15.

Signal Warrants

Signal warrant analysis was conducted for study area intersections. The Mountain Meadows Road/Champagne Boulevard and the Champagne Boulevard/Old Castle Road intersections are currently signalized, and therefore signal warrant analysis is not required for these intersections. Peak hour intersection signal warrants were conducted with existing traffic to determine if traffic signals are currently warranted. Planning level warrant analysis was conducted for the Existing + Project traffic and Existing + Project + Cumulative conditions. Table 2.2-21 summarizes the result of the signal warrant analysis.

Existing Conditions

As seen in Table 2.2-21, currently, the peak hour signal warrant is satisfied at the following intersections:

- Monte Vista Road/Buena Creek Road

- I-15 NB Ramps/Gopher Canyon Road
- I-15 SB Ramps/Gopher Canyon Road.

Existing + Project Conditions

As seen in Table 2.2-20, under existing plus project conditions the peak hour signal warrant would be satisfied at the following intersections:

- Monte Vista Road/Buena Creek Road
- Deer Springs Road/Merriam Mountains Parkway
- Meadow Park Lane/Deer Springs Road
- I-15 NB Ramps/Gopher Canyon Road
- I-15 SB Ramps/Gopher Canyon Road.

Existing + Project + Cumulative Projects Conditions

As seen in Table 2.2-21, under cumulative conditions, the peak hour signal warrant would be satisfied at the following intersections:

- Monte Vista Road/Buena Creek Road
- Deer Springs Road/Merriam Mountains Parkway
- Meadow Park Lane/Deer Springs Road
- I-15 NB Ramps/Gopher Canyon Road
- I-15 SB Ramps/Gopher Canyon Road.

Construction

Construction activities will generally occur in five phases, as described in Chapter 1.0. Grading phases are designed to provide balanced earthwork and differ slightly from the development phases. Construction activities will include demolition; clearing and grubbing; rock crushing and blasting; and finished grading necessary to install backbone infrastructure and grade finished lots, including the graded park sites. The first phase would be 1,090 residential units in Neighborhoods 1 and 2. The second phase would be the balance of Neighborhood 2 and Neighborhood 3, which would result in the development of 699 residential units. The third phase would be Neighborhood 4 and would consist of 371 residential units. The fourth phase would be Neighborhood 5, which would develop 530 residential units and the Neighborhood Commercial

center. The 10 Residential Estate Lots could proceed independently from the other Neighborhoods.

There will be two access points on Deer Springs Road (at Merriam Mountains Parkway and Meadow Park Lane) that construction-related traffic will utilize to access the project site. The final plan will identify staging areas.

Deer Springs Road will be built in two stages. The north side of the road, including utilities, will be Stage I; the south side, including utilities will be Stage II. The construction stages will be separated by K-rail barriers where necessary. Stage I will include the majority of the "cut" that will be generated by the cut slope just west of the Deer Springs Road/Merriam Mountains Parkway intersection. This material will either be used as fill within the roadway or transported directly to Neighborhood 1 via Merriam Mountains Parkway. No truck traffic is anticipated on the south side of Deer Springs Road during Stage I construction. Stage II would be initiated when Stage I is completed; traffic will be routed onto the north side of Deer Springs Road, and Stage II will commence. It is expected that grading for the south side of Deer Springs Road will be close to a cut/fill balance. However, it may be necessary to transport "fill" across the operational side of the roadbed during the south side construction. Assuming 15 percent of the fill may have to cross Deer Springs Road, 12,570 cubic yards of material or 900 loads would need to be transported across Deer Springs Road over a period of approximately 16 working days.

During the improvement phase of the project, the large majority of concrete, asphalt, base, and bedding materials will be hauled into the project on the non-operational side of the roadbed and transported along the graded section of the roadbed that is under construction. Approximately 50 percent of the asphalt capping material will need to be hauled on Deer Springs Road.

As seen in Section 2.2.8, the proposed project will be required to complete roadway improvements along Deer Springs Road from Twin Oaks Valley Road to Mesa Rock Road prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. Significant construction impacts would be limited to the period of time during the widening of Deer Springs Road and the reconstruction of the I-15 interchange. Throughout this period of construction activity, two lanes of travel will be maintained on Deer Springs Road. The majority of construction vehicle trips would be generated during the building of homes. Therefore, based on the construction phasing plan and project requirements, the majority of construction trips would not be generated until after Deer Springs Road has been widened to four lanes. In summary, the majority of the construction trips generated during housing construction would occur after Deer Springs Road improvements are complete, when the roadway is calculated to operate at LOS B.

A conceptual construction traffic control plan has been prepared to provide an overview of the requirements and information that will be provided in the Construction Traffic Control Plan (TCP) per project requirements (LLG 2008). The California Manual on Uniform Traffic Control Devices (MUTCD) states that the TCP "provides for the reasonably safe and efficient movement of road users through or around temporary traffic control zones while reasonably protecting workers, responders to traffic incidents, and equipment." TCPs define the locations of all roads that would need to be temporarily closed due to construction activities, including hauling of oversized loads by truck, truck routes, and permitted hours for construction vehicles to be operating. The TCPs define the use of warning signs, lights, barricades, cones, direction of travel, posted speed limit, location of temporary barricades, no parking restrictions, etc., according to standard guidelines outlined in the Caltrans Traffic Manual for Construction and Maintenance Work Zones (1996 edition, Revision 2), the Standard Specifications for Public Works Construction, the MUTCD, and the Work Area Traffic Control Handbook (WATCH).

All construction traffic is recommended to utilize the Deer Springs Road/I-15 interchange to access the project site via Deer Springs Road. The existing geometry at this interchange is adequate to accommodate turning trucks.

It is recommended that construction traffic activity be carried out during off-peak hours to the extent possible. In order to provide safe ingress and egress from the site during construction and at off-site improvements, construction traffic control plans should be prepared to the satisfaction of the County of San Diego and/or Local Lead Agency for which the improvements are being constructed (Impact TR-43). Therefore, impacts during construction without mitigation would be significant.

43) In the absence of traffic control plans being prepared to provide safe ingress and egress from the project site during construction, impacts would be significant. (Impact TR-43)

Acquisition of Right-of-Way (ROW)

Deer Springs Road is the only off-site improvement for which ROW acquisition will be needed. ROW acquisition requirements for Deer Springs Road improvements have not yet been determined. A home that is under construction at 1088 Deer Springs Road may be affected, depending upon the final alignment of the roadway. The proposed project would provide necessary ROW for construction of Deer Springs Road. This roadway has a failing LOS under its current condition, and the proposed project's requirements will include improvements to handle existing and project traffic. Research and discussions between the County and the applicant have not identified any physical barriers, relocation issues, or other limitations that would make acquisition of the necessary ROW infeasible. The roadway is on the list of County

Transportation Impact Fee (TIF) roads and has been previously identified for improvements, including necessary ROW acquisition.

Project Phasing

A project phasing analysis was conducted to determine the thresholds for the number of dwelling units which could be built before a specified mitigation would be required. Figure 1.1-19 depicts the proposed project phasing. As seen in Figure 1.1-19, the project is planned to be built in four phases.

Equivalent Dwelling Units

The project consists of various types of dwelling units and commercial development. In order to determine the timing of when each mitigation measure is needed, the development has been converted to "Equivalent Dwelling Units (EDU)." A weighted average trip rate was calculated at 8.67 trips per dwelling unit (Total Residential ADT/Total Residential Units equals weighted average trip rate; 23,398/2700 equals 8.67). Using this rate, the EDUs for each phase were calculated as shown in Table 2.2-22.

Table 2.2-22 summarizes the dwelling unit threshold before each mitigation measure is required. The dwelling unit threshold and required phase would ensure the mitigation measures for traffic are implemented prior to impacts being significant.

2.2.7 Growth Inducing Impact

As discussed in the Growth Inducement Technical Report (Appendix S), transportation infrastructure would be directly improved by the project as described in mitigation measures M-TR-1 through M-TR-42. The project would also indirectly contribute a fair share towards transportation infrastructure improvements, as identified in mitigation measures provided in Section 2.2.8. These direct and indirect transportation infrastructure improvements required as part of the project would help alleviate current deficiencies on roadways and intersections in the project vicinity that operate below an acceptable LOS, such as the I-15/Deer Springs Road interchange. These transportation infrastructure improvements would not construct new roads through undeveloped areas (other than into the project site), but would rather improve the efficiency of traffic flow and driving times in the project vicinity, and would help accommodate planned growth. These infrastructure improvements would not induce growth that would significantly burden existing community services, but would rather contribute either full or fair-share financing for necessary infrastructure improvements in the vicinity, including contribution to several transportation improvements identified in the City of San Marcos Capital Improvements Program (CIP).

Summary of Impacts

The following traffic impacts were identified as significant:

Direct Intersection Impacts (Existing + Project)

TR-1 I-15 NB Ramps/Deer Springs Road (LOS F in the PM peak hour)
TR-2 I-15 SB Ramps/Deer Springs Road (LOS E in the PM peak hour)
TR-3 Mesa Rock Road/Deer Springs Road (LOS F in the AM and PM peak hours)
TR-4 Twin Oaks Valley Road/Deer Springs Road (LOS E in the PM peak hour)
TR-5 Twin Oaks Valley Road/Buena Creek Road (LOS E in the PM peak hour)
TR-6 Monte Vista Drive/Buena Creek Road (LOS F in the AM and PM peak hours)
TR-7 Merriam Mountains Parkway/Deer Springs Road (LOS F in the AM and PM peak hours)
TR-8 Meadow Park Lane/Deer Springs Road (LOS E in the AM peak hour)
TR-9 I-15 SB Ramps/Gopher Canyon Road (LOS E in the AM and PM peak hours)
TR-10 I-15 NB Ramps/Gopher Canyon Road (LOS F in the PM peak hour)

Direct Segment Impacts (Existing + Project)

TR-11 Deer Springs Road from Twin Oaks Valley Road to Meadow Park Lane (LOS F)
TR-12 Deer Springs Road from Meadow Park Lane to Merriam Mountains Parkway (LOS F)
TR-13 Deer Springs Road from Merriam Mountains Parkway to Mesa Rock Road (LOS F)
TR-14 Deer Springs Road from Mesa Rock Road to I-15 SB Ramps (LOS F)
TR-15 Deer Springs Road from I-15 SB Ramps to I-15 NB Ramps (LOS F)
TR-16 Twin Oaks Valley Road from Deer Springs Road to Buena Creek Road (LOS F)
TR-17 Twin Oaks Valley Road from Buena Creek Road to Cassou Road (LOS F)
TR-18 Twin Oaks Valley Road from Borden Road to Richmar Avenue (LOS F)
TR-19 Buena Creek Road from South Santa Fe Avenue to Monte Vista Drive (LOS E)
TR-20 Buena Creek Road from Monte Vista Drive to Deer Springs Road (LOS E)
TR-21 Robelini Drive from Sycamore Avenue to South Santa Fe Avenue (LOS F)
TR-22 South Santa Fe Avenue from Woodland Drive to Buena Creek Road (LOS F)
TR-23 Twin Oaks Valley Road from Windy Way to Borden Road (LOS F)

Direct Freeway Impacts (Existing + Project)

TR-24 SR 78 between Mar Vista Drive to Sycamore Avenue (LOS F(0) in the westbound direction during the AM peak hour, and LOS F(0) in both directions during the PM peak hour)

TR-25 SR 78 between Sycamore Avenue to San Marcos Boulevard (LOS E in the westbound direction during the AM peak hour and LOS F(0) in the eastbound direction and LOS E in the westbound direction during the PM peak hour)

TR-26 Sycamore Avenue/SR 78 WB on-ramp

Cumulative Intersection Impacts (Existing + Project + Cumulative)

TR-27 Mountain Meadows Road/Champagne Boulevard (LOS E during the PM peak hour)

TR-28 Twin Oaks Valley Road/Cassou Road (LOS F during the AM and PM peak hours)

TR-29 Twin Oaks Valley Road/Borden Road (LOS F during the AM and PM peak hours)

Cumulative Roadway Segment Impacts (Existing + Project + Cumulative)

TR-30 Twin Oaks Valley Road from La Cienega Road to Windy Way (LOS E)

TR-31 Twin Oaks Valley Road from Windy Way to Borden Road (LOS E)

TR-32 Twin Oaks Valley Road from Borden Road to Richmar Avenue (LOS F)

TR-33 Twin Oaks Valley Road from Richmar Avenue to San Marcos Boulevard (LOS F)

TR-34 Twin Oaks Valley Road from San Marcos Boulevard to SR 78 WB Ramps (LOS F)

TR-35 Buena Creek Road from South Santa Fe Avenue to Monte Vista Drive (LOS F)

TR-36 Buena Creek Road from Monte Vista Drive to Deer Springs Road (LOS F)

TR-37 Monte Vista Drive from Foothills Drive to Buena Creek Road (LOS E)

TR-38 Robelini Drive from Sycamore Avenue to South Santa Fe Avenue (LOS F)

Cumulative Freeway Impacts (Existing + Project + Cumulative)

TR-39 I-15 from Centre City Parkway to Deer Springs Road (LOS E in the northbound direction during the PM peak hour)

TR-40 SR 78 from Mar Vista Drive to Twin Oaks Valley Road (LOS E, F(0), F(1), and F(2))

TR-41 Sycamore Avenue/SR 78 WB on-ramp

TR-42 Twin Oaks Valley Road/SR 78 WB on-ramp

Construction

TR-43 In the absence of traffic control plans being prepared to provide safe ingress and egress from the project site during construction, impacts would be significant.

2.2.8 Mitigation Measures

Mitigation measures are listed below. The mitigation measure numbers correlate to the impact numbers referenced above in sections 2.2.3–2.2.6.

The County of San Diego has developed an overall programmatic solution that addresses existing and projected future road deficiencies in the unincorporated portion of San Diego County. This program includes the adoption of a TIF program to fund improvements to roadways necessary to mitigate potential cumulative impacts caused by traffic from future development. The cost of improvements constructed by the project should be credited against any development impact fees the project pays if the improvement is listed in the County's current TIF document.

The proposed project generates 35,518 ADT. These trips will be distributed on circulation element roadways in the County that were analyzed by the TIF program; some of the roadways currently are or are projected to operate at inadequate levels of service. In addition to direct impacts, project trips contribute to a potential significant cumulative impact, and mitigation is required. Therefore, payment of the TIF, which will be required at issuance of building permits, in combination with other components of the program, will mitigate potential cumulative traffic impacts to less than significant.

The County would require that construction and encroachment permits be obtained from the County before any work is permitted to be performed within the public ROW.

All direct and cumulative traffic impacts within the cities of San Marcos and Vista are considered to be significant and unmitigated at this time. Approval by the City of San Marcos or City of Vista for construction of the physical improvements, although reasonably anticipated, cannot be guaranteed. The cities of San Marcos and Vista have no defined traffic mitigation fee program or other program or payment plan for County projects that would assure that any fair share payment would be used for the relevant mitigation. Therefore, the project's impacts in the cities of San Marcos and Vista are considered to be significant and unmitigated because neither the project applicant nor the County can reasonably ensure that either city would implement the recommended mitigation. If the City of Vista or City of San Marcos adopts an applicable mitigation program, the proposed project will be required to participate, and impacts would be reduced to a level below significance. It should be noted that discussions have been initiated with

the City of San Marcos to reach an agreement to ensure that improvements would be completed. In the event an agreement is reached with the City of San Marcos, impacts within the City of San Marcos would be reduced to a level below significance because the improvements identified below located within the City of San Marcos, would be assured through the agreement.

In addition, as shown in Table 2.2-23, fair share contributions are recommended to be paid to Caltrans for mitigation of direct and cumulative project impacts to their facilities. Caltrans is willing to accept mitigation payments through individually negotiated agreements (Traffic Mitigation Agreement, June 2006). However, Caltrans has no fair-share fee mitigation program that would ensure such payments would be used for the relevant mitigation and thereby minimize the project's assessed impacts to the freeway. Therefore, such mitigation could not reduce the project's impacts to a level that is less than significant, and impacts would remain significant and unmitigated. If Caltrans adopts a fee mitigation program to be used for the relevant mitigation, the proposed project will be required to participate in funding program, and impacts would be reduced to a level below significance. It should be noted that a PSR is currently being prepared in consultation with Caltrans, and the recommended intersection geometry for the I-15 SB Ramps/Deer Springs Road and I-15 NB Ramps/Deer Springs Road provided below as M-TR-1 and M-TR-2 are based on the draft PSR study.

The following Travel Demand Management (TDM) measures have been included as environmental design considerations (see Chapter 8.0) to reduce vehicular trips and reduce the level of significant impacts. The environmental design considerations would not be under full control of the project applicant or the County because the TDMs require approval and coordination with other lead agencies; however, the proposed project will facilitate as many of these measures as possible. These measures will contribute towards the reduction in the project-generated trips, and thus reduce the level of significant unmitigated impacts: (1) Provide traffic systems management, such as facilitating a coordinated traffic signal system along Deer Springs Road with signal interconnect; (2) Facilitate carpools/vanpools by maintaining a database of the workplace of each resident and matching residents to carpools/vanpools. An Intranet site for the Merriam Mountains community will be funded through HOA fees. The Intranet site will be able to post information regarding ride-share programs and personal contacts for carpooling; and (3) Provide bus shelters at the internal bus stops that would enhance service to the existing Deer Springs park-and-ride facility.

Direct Impacts (Existing + Project)

Intersections

M-TR-1 I-15 NB Ramps/Deer Springs Road (Caltrans) – Widen the I-15/Deer Springs Road interchange to provide the lane configuration resulting from the Caltrans

Project Study Report process (currently underway). This configuration could be the following based on work completed to date on the PSR:

- NB – Two left-turn lanes and two right-turn lanes
- WB – Two through lanes and one right-turn lane
- EB – Two left-turn lanes and two through lanes.

This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-2 I-15 SB Ramps/Deer Springs Road (Caltrans) – Widen the I-15/Deer Springs Road interchange to provide the lane configuration resulting from the Caltrans Project Study Report process (currently underway) This configuration could be the following based on work completed to date on the PSR:

- SB – One left-turn lane and two right-turn lanes
- WB – Two through lanes and one left-turn lane
- EB – Three through lanes and two right-turn lanes.

This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-3 Mesa Rock Road/Deer Springs Road (San Diego County) – Improve the intersection to provide the following geometry:

- SB – One left-turn lane and one shared through/right-turn lane
- WB – One left-turn lane, three through lanes, and one right-turn lane
- NB – One left-turn lane and one shared through/right-turn lane
- EB – One left-turn lane, two through lanes, and one shared through/right-turn lane.

This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-4 Twin Oaks Valley Road/Deer Springs Road (City of San Marcos) – If not completed by another development, ensure the following lane configuration improvements are implemented to the satisfaction of the County of San Diego and City of San Marcos Department of Public Works.

- SB – One through lane and one shared through/right lane
- NB – One left-turn lane and two through lanes
- EB – One left-turn lane and one right-turn lane.

This mitigation shall be implemented prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-5 Twin Oaks Valley Road/Buena Creek Road (City of San Marcos) – If not completed by another development, ensure the following lane configuration improvements are implemented to the satisfaction of the City of San Marcos Department of Public Works.

- SB – One left-turn lane, two through lanes, and one right-turn lane
- WB – One shared left/through/right lane
- NB – One left-turn lane, one through lane, and one shared through/right lane
- EB – Two left-turn lanes and one shared through/right lane.

This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-6 Monte Vista Road/Buena Creek Road (San Diego County) – If not completed by another development, ensure a traffic signal and the following lane configuration improvements are implemented to the satisfaction of the County of San Diego Department of Public Works. A detailed signal warrant analysis shall be conducted prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. The signal shall not be installed until warrants are met.

- SB – One shared left/right lane
- WB – One through lane and one right-turn lane with right-turn-overlap
- EB – One left-turn lane and one through lane.

This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-7 Merriam Mountains Parkway/Deer Springs Road (San Diego County) – Provide a traffic signal and implement the following lane configuration improvements to the satisfaction of the County of San Diego Department of Public Works. A detailed signal warrant analysis shall be conducted prior to issuance of a certificate of

occupancy for the first dwelling unit in Phase I. The signal shall not be installed until warrants are met.

- SB – Two left-turn lanes and one right-turn lane
- WB – One right-turn lane and two through lanes
- EB – Two left-turn lanes and two through lanes.

This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-8 Meadow Park Lane/Deer Springs Road (San Diego County) - Provide a traffic signal and implement the following lane configuration improvements to the satisfaction of the County of San Diego Department of Public Works. A detailed signal warrant analysis shall be conducted prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. The signal shall not be installed until warrants are met.

- SB – Two left-turn lanes and one right-turn lane
- WB – One through lane, one shared through/right lane and one right-turn lane
- EB – One left-turn lane and two through lanes.

This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-9 I-15 SB Ramps/Gopher Canyon Road (Caltrans) – If not completed by another development, ensure the installation of a new traffic signal. A detailed signal warrant analysis shall be conducted prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. The signal shall not be installed until warrants are met.

M-TR-10 I-15 NB Ramps/Gopher Canyon Road (Caltrans) – If not completed by another development, ensure the installation of a new traffic signal. A detailed signal warrant analysis shall be conducted prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. The signal shall not be installed until warrants are met.

Roadway Segments

M-TR-11 Deer Springs Road from Twin Oaks Valley Road to Meadow Park Lane (San Diego County) – Widen existing roadway to San Diego County 4-Lane Major Road standards. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-12 Deer Springs Road from Meadow Park Lane to Merriam Mountains Parkway (San Diego County) – Widen existing roadway to San Diego County 4-Lane Major Road standards. Provide a westbound left-turn lane at the entrance to "Golden Door" located south of Deer Springs Road. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-13 Deer Springs Road from Merriam Mountains Parkway to Mesa Rock Road (San Diego County) – Widen existing roadway to San Diego County 4-Lane Major Road standards with auxiliary lane. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-14 Deer Springs Road from Mesa Rock Road to I-15 SB Ramps (San Diego County/Catrans) – Widen existing roadway to five lanes, plus auxiliary lanes, consistent with the final determination of the Caltrans PSR requirements. The actual configuration will be finalized in the Caltrans PSR. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-15 Deer Springs Road from I-15 SB Ramps to I-15 NB Ramps (San Diego County/Caltrans) –Widen existing roadway to five lanes, plus auxiliary lanes, consistent with the final determination of the Caltrans PSR requirements. The actual configuration will be finalized in the Caltrans PSR. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-16 Twin Oaks Valley Road from Deer Springs Road to Buena Creek Road (City of San Marcos) – Construction of intersection mitigation measures M-TR-4 and M-TR-5 will mitigate the segment impact by providing additional capacity at two signalized intersections along this segment in conjunction with payment of a fair share towards the City of San Marcos Twin Oaks Valley Road-widening CIP project. If not completed by another development, ensure the above mitigation is implemented to the satisfaction of the City of San Marcos Department of Public

Works. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-17 Twin Oaks Valley Road from Buena Creek Road to Cassou Road (City of San Marcos) – Construction of intersection mitigation measures M-TR-5 and M-TR-7 will mitigate the segment impact by providing additional capacity at the northern end of this segment in conjunction with payment of a fair share towards the City of San Marcos Twin Oaks Valley Road-widening CIP project. If not completed by another development, ensure the above mitigation is implemented to the satisfaction of the City of San Marcos Department of Public Works. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-18 Twin Oaks Valley Road from Borden Road to Richmar Avenue (City of San Marcos) – If not completed by others or the City of San Marcos, contribute a fair share towards the City-planned widening of the existing roadway to 4-Lane Major Road Standards. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase II.

M-TR-19 Buena Creek Road from South Santa Fe Avenue to Monte Vista Drive (San Diego County) – Mitigation measure M-TR-6 will mitigate this segment impact by providing additional capacity at one of the signalized intersections along this segment. If not completed by another development, ensure the above mitigation is implemented to the satisfaction of the County of San Diego Department of Public Works. This mitigation is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase II.

M-TR-20 Buena Creek Road from Monte Vista Drive to Deer Springs Road (San Diego County) – Mitigation measures M-TR-5 and M-TR-6 will mitigate this segment impact by providing additional capacity at the signalized intersection along this segment. If not completed by another development, ensure the above mitigation is implemented to the satisfaction of the County of San Diego Department of Public Works. This mitigation is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.

M-TR-21 Robelini Drive from Sycamore Avenue to South Santa Fe Avenue (San Diego County) – Extend the NB right-turn lane on Robelini Drive at South Santa Fe Avenue from the current 130 feet in length to 260 feet in length. This doubling of the right-turn lane length will enable 10–12 vehicles to queue before the adjacent left-turn lane is negatively impacted, allowing for twice the current queue length.

(See Appendix M for a Conceptual Plan of the improvement.) This mitigation is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase II.

M-TR-22 South Santa Fe Avenue from Woodland Drive to Buena Creek Road (San Diego County) – Improve the South Santa Fe Avenue/Buena Creek Road intersection to provide dedicated right- and left-turn lanes on SB Buena Creek Road. This improvement will add capacity along the impacted segment. This mitigation is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase IV.

M-TR-23 Twin Oaks Valley Road from Windy Way to Borden Road (City of San Marcos) – If not completed by others or the City of San Marcos, contribute a fair share towards the City-planned widening of the existing roadway to 4-Lane Major Road standards. This mitigation is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase II.

Freeway Mainline

M-TR-24 SR 78 from Mar Vista Drive to Sycamore Avenue (Caltrans) – Contribute a fair share towards adding one HOV lane in each direction on SR 78 between Mar Vista Drive and Sycamore Avenue.

M-TR-25 SR 78 from Sycamore Avenue to San Marcos Boulevard (Caltrans) – Contribute a fair share towards adding one HOV lane in each direction on SR 78 between Sycamore Avenue and San Marcos Boulevard.

Freeway Ramps

M-TR-26 Sycamore Avenue/SR 78 WB on-ramp (Caltrans/City of Vista) – Add a third Single Occupancy Vehicle (SOV) lane. The current ramp configuration is two SOV lanes and one HOV lane. It is not Caltrans common practice to allow three SOV lanes and one HOV lane.

Cumulative Impacts

Intersection Mitigation Measures

M-TR-27 Mountain Meadow Road/Champagne Boulevard (County of San Diego) – Payment of appropriate TIF by participation in TIF program on a per dwelling unit basis upon issuance of building permits.

M-TR-28 Twin Oaks Valley Road/Cassou Road (City of San Marcos) – Contribute a fair share to the City of San Marcos towards widening Twin Oaks Valley Road to four lanes through the Cassou Road intersection. This mitigation measure is required by payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits.

M-TR-29 Twin Oaks Valley Road/Borden Road (City of San Marcos) – Contribute a fair share to the City of San Marcos towards the planned widening of the SB approach to provide one left-turn lane, two through lanes, and one right-turn lane; and widening the NB lane to provide one left-turn lane, one through lane, and one through/right-turn lane. This mitigation measure is required by payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits.

Roadway Segments

M-TR-30 Twin Oaks Valley Road from La Cienega Road to Windy Way (City of San Marcos) – Contribute a fair share to the City of San Marcos towards the CIP widening of Twin Oaks Valley Road to four lanes. Widening to six lanes would be needed to accommodate existing + project + cumulative traffic. Existing right-of-way is not available for this improvement and there are no known plans to acquire such right-of-way. In addition, there is no established program to contribute to improvement of this roadway segment to six lanes.

M-TR-31 Twin Oaks Valley Road from Windy Way to Borden Road (City of San Marcos) – Contribute a fair share to the City of San Marcos towards the CIP widening of Twin Oaks Valley Road to four lanes. Widening to six lanes would be needed to accommodate existing + project + cumulative traffic. Existing right-of-way is not available for this improvement and there are no known plans to acquire such right-of-way. In addition, there is no established program to contribute to improvement of this roadway segment to six lanes.

M-TR-32 Twin Oaks Valley Road from Borden Road to Richmar Avenue (City of San Marcos) – Contribute a fair share to the City of San Marcos towards the CIP widening of Twin Oaks Valley Road to four lanes. Widening to six lanes would be needed to accommodate existing + project + cumulative traffic. Existing right-of-way is not available for this improvement and there are no known plans to acquire such right-of-way. In addition, there is no established program to contribute to improvement of this roadway segment to six lanes.

M-TR-33 Twin Oaks Valley Road from Richmar Avenue to San Marcos Boulevard (City of San Marcos) – Contribute a fair share to the City of San Marcos towards the CIP widening of Twin Oaks Valley Road to a six-lane Major Arterial. This mitigation measure is required by payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits.

M-TR-34 Twin Oaks Valley Road from San Marcos Boulevard to SR 78 WB Ramps (City of San Marcos) – Mitigation of this cumulative impact would require widening Twin Oaks Valley Road to eight lanes. The roadway is already constructed to its ultimate six-lane circulation element classification and there are no known plans by the City of San Marcos to process a circulation element amendment to change the classification. In addition, there is no established program to contribute towards improvement of this roadway segment to eight lanes.

M-TR-35 Buena Creek Road from South Santa Fe Avenue to Monte Vista Drive (San Diego County) – Payment of appropriate TIF. This mitigation measure is required by participation in a TIF program on a per dwelling unit basis based on issuance of building permits.

M-TR-36 Buena Creek Road from Monte Vista Drive to Deer Springs Road (San Diego County) – Payment of appropriate TIF. This mitigation measure is required by participation in a TIF program on a per dwelling unit basis based on issuance of building permits.

M-TR-37 Monte Vista Drive from Foothills Drive to Buena Creek Road (San Diego County) – Payment of appropriate TIF. This mitigation measure is required by participation in a TIF program on a per dwelling unit basis based on issuance of building permits.

M-TR-38 Robelini Drive from Sycamore Avenue to South Santa Fe Avenue (San Diego County) – Payment of appropriate TIF. This mitigation measure is required by participation in a TIF program on a per dwelling unit basis based on issuance of building permits.

Freeway Mainline

M-TR-39 I-15 from Centre City Parkway to Deer Springs Road (Caltrans) – Contribute a fair share towards the future improvements on I-15 between Centre City Parkway and Deer Springs Road. In addition, the improvements to the I-15/Deer Springs Road interchange will partially mitigate this impact proportional to the

relationship between the amount of traffic the project contributes and non-project-related traffic at the interchange. This mitigation measure is required by payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits.

M-TR-40 SR 78 from Mar Vista Drive to Twin Oaks Valley Road (Caltrans) – Contribute a fair share towards the future improvements on SR 78 between Mar Vista Drive and Twin Oaks Valley Road proportional to the relationship between the amount of traffic the project contributes and non-project-related traffic along the freeway segment. This mitigation measure is required by payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits.

Freeway Ramps

M-TR-41 Sycamore Avenue/SR 78 WB on-ramp (Caltrans) –Add a third Single Occupancy Vehicle (SOV) lane. The current ramp configuration is two SOV lanes and one HOV lane. It is not Caltrans common practice to allow three SOV lanes and one HOV lane. Neither the City of Vista, nor Caltrans has plans to add lanes to this ramp and there is no established program to contribute to the improvement of this on-ramp.

M-TR-42 Twin Oaks Valley Road/SR 78 WB on-ramp (Caltrans) – Add a second SOV (Single Occupancy Vehicle) lane. Neither the City of San Marcos, nor Caltrans has plans to add lanes to this ramp and there is no established program to contribute to the improvement of this on-ramp.

Construction Impacts

M-TR-43 Construction Traffic (San Diego County) – Prepare and implement traffic control plans to manage construction traffic. Also ensure that the County of San Diego designated truck routes are utilized by heavy vehicles. Specific measures that will be incorporated into the traffic control plans include: (a) Always keeping one lane open in each direction on Deer Springs Road. Neither direction of travel will be closed at any given time. (b) Ensuring heavy trucks utilize the Deer Springs Road/I-15 interchange (as opposed to Twin Oaks Valley Road) to provide access to the project site. (c) Carrying out construction activity during off-peak hours to the extent possible per the discretion of the County Traffic Engineer. (d) Temporary traffic signals are not expected to be necessary but will be installed, should volumes and safety concerns warrant such an installation, once more specific traffic data is available. (e) Providing easy-to-follow detour routes.

(f) Maintaining access to the nearby community. (g) Providing plans showing freeway signage for advance warning of construction. (h) Limiting to the extent possible the use of any pedestrian and bicycle facility in the area. Preparation of Traffic Control Plans is required prior to issuance of the first grading permit.

2.2.9 Conclusion

With the implementation of the improvements recommended above, all project impacts would be mitigated to below a level of significance except those along freeway segments, freeway ramps, and identified impacts within the City of San Marcos and City of Vista.

Direct Impacts – Intersections: All intersections within the study area are proposed to operate at LOS D or better except the ten intersections identified above in Section 2.2.8, which would operate below LOS D for existing + project conditions (Impact TR-1 through TR-10).

Impacts TR-1 and TR-2 are located within Caltrans jurisdiction and would include improvements to the Deer Springs Road/I-15 interchange. M-TR-1 and M-TR-2 include interchange improvements resulting from the Caltrans Project Study Report (PSR) process. Since the proposed project is located within the County planning jurisdiction, and there is no guarantee that the Caltrans will implement the improvements identified, impacts are conservatively assessed to be significant and unavoidable. However, as with most projects, it is anticipated that the necessary mitigation measures would be implemented by the development and that it would be the task of the responsible agency to carry them out in a timely manner. If an agreement is executed with Caltrans for completion of the improvements at the I-15/Deer Springs Road interchange consistent with the lane configuration resulting from the Caltrans PSR process, impacts would be reduced to a level below significance because implementation of the mitigation measures would be assured.

Impacts TR-3, TR-6, TR-7 and TR-8 are located within the County planning jurisdiction. M-TR-3, M-TR-6, M-TR-7 and M-TR-8 include intersection improvements that would ensure the intersections would operate at an acceptable LOS with existing + project traffic. Therefore, with implementation of M-TR-6, M-TR-7 and M-TR-8, impacts would be less than significant.

Impacts TR-4 and TR-5 are located within the City of San Marcos and proposed mitigation measures (M-TR-4 and M-TR-5) include intersection improvements to allow intersections to operate at an acceptable LOS with existing + project traffic. However, the proposed project is located within the County planning jurisdiction, and there is no guarantee that the City of San Marcos will implement the improvements identified. As with most projects, it is anticipated that the necessary mitigation measures would be funded by the development and that it would be the task of the responsible agency to carry them out in a timely manner. Discussions to reach an

agreement have begun with the City of San Marcos to prepare a three-way agreement that would ensure improvements would be completed. In the event an agreement is reached, impacts within the City of San Marcos would be reduced to a level below significance because the mitigation measures would be assured through the agreement. Thus, impacts TR-4 and TR-5, while potentially reduced by project mitigation measures (e.g., by physical improvements that improve traffic flow and reduce delays), are conservatively assessed to be significant and unmitigated. Should the City of San Marcos approve plans so that construction can proceed in accordance with M-TR-4 and M-TR-5, the project's impacts would be mitigated to a less than significant level.

Impacts TR-9 and TR-10 are located within Caltrans jurisdiction and would include improvements to the Gopher Canyon Road/I-15 interchange. Since the proposed project is located within the County planning jurisdiction, and there is no guarantee that the Caltrans will implement the improvements identified, impacts are conservatively assessed to be significant and unmitigated. However, as with most projects, it is anticipated that the necessary mitigation measures would be implemented by the development and that it would be the task of the responsible agency to carry them out in a timely manner. If an agreement is executed with Caltrans for completion of the improvements at the I-15/Gopher Canyon Road interchange consistent with M-TR-9 and M-TR-10, impacts would be reduced to a level below significance because implementation of the mitigation measures would be assured.

Direct Impacts – Roadway Segments: Segment operations for existing + project conditions were determined to be significant at the segments identified (Impacts TR-11 through TR-23).

Impacts TR-11 through TR-13 identify roadway segments along Deer Springs Road that would operate below an acceptable LOS with existing + project traffic. M-TR-11, M-TR-12 and M-TR-13 include roadway widening that would widen the existing roadway to San Diego County 4-Lane Major Road standards. The identified mitigation measures (M-TR-11, M-TR-12 and M-TR-13) would result in the roadway operating at an acceptable LOS. Therefore impacts would be less than significant.

Impacts TR-14 and TR-15 identify roadway segment impacts from Mesa Rock Road to I-15 NB ramps along Deer Springs Road. The improvements that would be required to ensure the roadway segment operates at an acceptable LOS include widening the existing roadway to five lanes plus auxiliary, consistent with the final determination of the Caltrans PSR requirements (see M-TR-14 and M-TR-15). Since the proposed project is located within the County planning jurisdiction, and there is no guarantee that the Caltrans will implement the improvements identified, impacts are conservatively assessed to be significant and unmitigated. However, as with most projects, it is anticipated that the necessary mitigation measures would be

implemented by the development and that it would be the task of the responsible agency to carry them out in a timely manner. If the roadway segment improvements are completed resulting from the Caltrans PSR process, impacts would be reduced to a level below significance because the mitigation measures would be assured through an agreement with Caltrans.

Impacts TR-16 and TR-17 are located within the City of San Marcos and M-TR-16 and M-TR-17 include intersection improvements that would allow the identified roadway segments to operate at an acceptable LOS. A Travel Time Analysis has been completed in Section 9.1.3 of the Traffic Impact Analysis (LLG 2009) that demonstrates that the intersection improvements would allow the identified roadway segments to operate at an acceptable LOS with proposed intersection improvements. The requirements for a fair share contribution provides additional capacity to maintain the acceptable LOS. However, the proposed project is located within the County planning jurisdiction, and there is no guarantee that the City of San Marcos will implement the intersection improvements identified in M-TR-16 and M-TR-17. However, as with most projects, it is anticipated that the necessary mitigation measures would be funded by the development and that it would be the task of the responsible agency to carry them out in a timely manner. Thus, impacts M-TR-16, and M-TR-17, while potentially reduced by project mitigation measures (e.g., by physical improvements that improve traffic flow and reduce delays), are conservatively assessed to be significant and unmitigated. It should be noted that discussions have been initiated to reach an agreement for improvements. In the event an agreement is reached, impacts at roadway segments TR-16 and TR-17 within the City of San Marcos would be reduced to a level below significance because the mitigation measures would be assured through the agreement.

Impacts TR-18 and TR-23 are located within the City of San Marcos and M-TR-18 and M-TR-23; include the payment of fair share towards the City of San Marcos planned widening of the existing roadway to 4-Lane Major Standards. Although the projects impacts to the roadway are proportionally small, the impact will not be fully mitigated unless the roadway is constructed to 4-lanes and the project only proposes fair share payment towards the planned widening. Therefore impacts would be significant and unmitigated.

Impacts TR-19, TR-20, TR-21, and TR-22 include impacts to roadway segments located within the County of San Diego. M-TR-19, M-TR-20, M-TR-21 and M-TR-22 include various interchange improvements that would allow the identified roadway segments to operate at an acceptable LOS. A Travel Time Analysis has been completed in Section 9.1.3 of the Traffic Impact Analysis (LLG 2009) that demonstrates that the intersection improvements would allow the identified roadway segments to operate at an acceptable LOS with proposed intersection improvements. The identified mitigation measures (M-TR-19, M-TR-20, M-TR-21 and M-TR-

22) would result in identified roadway segments operating at an acceptable LOS. Therefore impacts would be less than significant.

Direct Impacts – Freeway Mainline: Freeway mainline operations for existing + project conditions were determined to be significant at the following locations: SR 78 from Mar Vista Drive to Sycamore Avenue (Impact TR-24) and SR 78 from Sycamore Avenue to San Marcos Boulevard (Impact TR-25). Mitigation of the impacts (M-TR-24 and M-TR-25) could involve payment of a fair share toward improvements; however, impacts TR-24 and TR-25 are considered significant and unmitigated because the responsible agencies have no plans to construct these improvements and mitigation is not feasible since an established program does not exist for the specific improvements toward which payment can be directed and no assurances the improvement would be constructed. Therefore impacts would be significant and unmitigated.

Direct Impacts – Freeway Ramps: Freeway ramp impacts would be significant at Sycamore Avenue/SR 78 WB on-ramp (Impact TR-26). The current ramp configuration is two SOV lanes and one HOV lane. It is not Caltrans common practice to allow three SOV lanes and one HOV lane and therefore it is not feasible to add this lane. Neither the City of Vista nor Caltrans has plans to add lanes to this ramp and there is no established program to contribute to the improvement of this on-ramp. Therefore Impact TR-26 is considered significant and unmitigated because further improvements would not be feasible.

Cumulative Impacts – Intersections: All intersections within the study area are proposed to operate at LOS D or better except the three intersections identified, which would operate below LOS D for existing + project + cumulative conditions (Impacts TR-27 through TR-29). Mitigation measure M-TR-27 would reduce impacts to a level below significance through payment of TIF fees to the County. Cumulative impacts at two intersections (Impact TR-28 and TR-29) would be significant. Mitigation measures M-TR-28 and M-TR-29 are located within the City of San Marcos and have been imposed on the project as a condition of approval, requiring payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits. However, implementation of the mitigation measures is not under the control of the County, and there is no guarantee that the City will complete the improvements. If the City fails to complete the improvements, the project impacts will not be fully mitigated. Should the City complete improvements in accordance with M-TR-28 and M-TR-29, the project's impacts would be mitigated to a less than significant level. It should be noted discussions have begun to reach an agreement for the required improvements. In the event an agreement is reached, impacts within the City of San Marcos would be reduced to a level below significance because the mitigation measures would be assured through the agreement.

Cumulative Impacts – Roadway Segments: Cumulative impacts at nine roadway segments (Impacts TR-30 through TR-38) would be significant.

Impacts TR-30 through TR-32 are located within the City of San Marcos. M-TR-30, M-TR-31, M-TR-32 includes contribution of a fair share to the City of San Marcos for the planned widening to 4 lanes along Twin Oaks Valley Road. To mitigate the roadway segment impacts (TR-30, TR-31 and TR-32), widening to six lanes would be required to accommodate existing + project + cumulative traffic. Existing right-of-way is not available for this improvement and there are no plans to acquire such right-of-way. In addition, there is no established program to contribute to improvements of this roadway segment. For these reasons, widening to six lanes is determined to be infeasible and impacts would be significant and unmitigated.

Impact TR-33 is located within the City of San Marcos and M-TR-33 includes contribution of fair share to the City of San Marcos for the planned widening to six lanes. Mitigation measure M-TR-33 would reduce impacts to a level below significance through the payment of a fair share contribution, which would provide funds toward widening the roadway segment to operate at an acceptable level of service. The City of San Marcos can and should implement M-TR-33. However, implementation of the mitigation measure is not under the control of the County, and there is no guarantee that the City will approve plans for construction of the improvements or proceed with construction. If the City fails to complete construction, the project impacts will not be fully mitigated. Should the City proceed with construction in accordance M-TR-33, the project's impacts would be mitigated to a less than significant level. It should be noted that discussions have been initiated to reach an agreement for the required improvements. In the event an agreement is reached, impacts within the City of San Marcos would be reduced to a level below significance because the mitigation measures would be assured through the agreement.

Impacts TR-34 is located within the City of San Marcos. M-TR-34 identifies this impact would require widening Twin Oaks Valley Road to eight lanes. The roadway is already constructed to its ultimate six lane circulation element classification and there are no known plans by the City of San Marcos to process a circulation element amendment to change the classification. In addition, there is no established program to contribute to improvement of this roadway segment. For these reasons, mitigation is determined to be infeasible. Impacts would be significant and mitigated.

Cumulative impacts for roadway segments at identified locations within the County of San Diego (TR-35, TR-36, TR-37, and TR-38) would be significant. M-TR-35 through M-TR-38 would reduce impacts to a level below significance through payment of TIF fees. Payment of TIF fees would reduce impacts along these roadway segments to less than significant.

Cumulative Impacts – Freeway Mainline: Cumulative freeway mainline impacts are considered significant on I-15 from Centre City Parkway to Deer Springs Road (Impact TR-39) and SR 78 from Mar Vista Drive to Twin Oaks Valley Road (Impact TR-40). Impacts TR-39 and TR-40 consist of impacts to Caltrans facilities. Fair share contributions are recommended to be paid to Caltrans for mitigation of direct and cumulative project impacts to Caltrans facilities. However, Caltrans has no fee mitigation program that would ensure such payments would be used for the relevant mitigation and thereby minimize the project's assessed impacts to the freeway. Therefore, such mitigation could not reduce the project's impacts to a level that is less than significant, and impacts would remain significant and unavoidable. If Caltrans adopts a program to be used for the relevant mitigation, the proposed project will be required to participate in the funding program, and impacts would be reduced to a level below significance.

Cumulative Impacts – Freeway Ramps: Cumulative impacts at the Sycamore Avenue/SR 78 WB on-ramp and the Twin Oaks Valley Road/SR 78 WB on-ramp are considered significant (Impact TR-41 and TR-42). For Impact TR-41 and TR-42, neither the City of Vista, nor Caltrans has plans to add lanes to this ramp and there is no established program to contribute to the improvement of this on-ramp. For these reasons, this mitigation measure is determined to be infeasible. Impacts would be significant and unavoidable.

Construction Traffic: Impacts would be significant due to construction vehicles accessing the project site during construction, resulting in intersection delay and additional vehicles traveling along roadways adjacent to the project site (Impact TR-43). Mitigation measure M-TR-43 would reduce impacts to a level below significance because the preparation and implementation of traffic control plans to manage construction traffic and identifying designated truck routes would minimize impacts from construction traffic.

TABLE 2.2-1
Existing Intersection Operations

Intersection	Control Type	Peak Hour	Existing	
			Delay [a]	LOS [b]
1. Mountain Meadows Rd./Champagne Blvd.	Signal	AM	29.0	C
		PM	27.1	C
2. I-15 NB Ramps/Deer Springs Rd.	Signal	AM	26.1	C
		PM	38.2	D
3. I-15 SB Ramps/Deer Springs Rd.	Signal	AM	25.6	C
		PM	22.2	C
4. Mesa Rock Rd./Deer Springs Rd.	Signal	AM	33.3	C
		PM	26.8	C
5. Merriam Mountains Pkwy./Deer Springs Rd.	Signal	AM	[c]	[c]
		PM	[c]	[c]
6. Meadow Park Ln. /Deer Springs Rd.	Signal	AM	[c]	[c]
		PM	[c]	[c]
7. Twin Oaks Valley Rd./Deer Springs Rd.	AWSC [d]	AM	6.9	A
		PM	9.9	A
8. Twin Oaks Valley Rd./Buena Creek Rd.	Signal	AM	19.0	B
		PM	23.2	C
9. Monte Vista Rd./Buena Creek Rd.	TWSC [e]	AM	20.6	C
		PM	34.5	D
10. Twin Oaks Valley Rd./Cassou Rd.	Signal	AM	24.3	C
		PM	19.8	B
11. Twin Oaks Valley Rd./Borden Rd.	Signal	AM	42.5	D
		PM	30.1	C
12. E. Mission Rd./ Vineyard Rd.	Signal	AM	34.1	C
		PM	34.1	C
13. Twin Oaks Valley Rd./San Marcos Blvd.	Signal	AM	46.7	D
		PM	54.1	D
14. Twin Oaks Valley Rd./SR 78 WB Ramps	Signal	AM	8.0	A
		PM	18.4	B
15. Twin Oaks Valley Rd./SR 78 EB Ramps	Signal	AM	24.1	C
		PM	20.6	C
16. Knoll Rd./San Marcos Blvd./SR 78 WB Ramps	Signal	AM	33.1	C
		PM	32.5	C
17. San Marcos Blvd./SR 78 EB Ramps	Signal	AM	10.1	B
		PM	9.0	A
18. South Santa Fe Ave./Buena Creek Rd.	Signal	AM	16.0	B
		PM	23.2	C
19. South Santa Fe Ave./Robilini Dr.	Signal	AM	23.3	C
		PM	23.6	C
20. SR 78 WB Ramps/Sycamore Ave.	Signal	AM	26.2	C
		PM	36.0	D
21. SR 78 EB Ramps/Sycamore Ave.	Signal	AM	51.1	D
		PM	24.0	C
22. I-15 NB Ramps/Gopher Canyon Rd.	TWSC [e]	AM	19.7	C
		PM	**>100.0**	**F**
23. I-15 SB Ramps/Gopher Canyon Rd.	TWSC [e]	AM	**35.3**	**E**
		PM	**35.3**	**E**
24. Champagne Blvd./Gopher Canyon Rd.	Signal	AM	26.3	C

TABLE 2.2-1 (CONT.)

Intersection	Control Type	Peak Hour	Existing	
			Delay [a]	LOS [b]
		PM	24.7	C
25. Champagne Blvd./Old Castle Rd. [c]	Signal	AM	21.5	C
		PM	26.2	C
26. Champagne Blvd./Lawrence Welk Dr.	TWSC [e]	AM	11.6	B
		PM	21.6	C
27. N. Centre City Pkwy./Mesa Rock Rd.	TWSC [e]	AM	9.4	A
		PM	9.3	A
28. N. Centre City Pkwy./Country Club Dr.	Signal	AM	26.7	C
		PM	35.9	D

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Planned project access driveway. Does not currently exist.
d. AWSC – All-Way STOP controlled intersection. Overall level of service and delay is reported.
e. TWSC – Two-Way STOP controlled intersection. Worst case level of service and delay is reported.

TABLE 2.2-2
Existing Street Segment Volumes

Segment	Volume
Deer Springs Road	
Twin Oaks Valley Rd. to Meadow Park Ln.	18,400
Meadow Park Ln. to Merriam Mountains Pkwy.	16,300
Merriam Mountains Pkwy. to Mesa Rock Rd.	16,300
Mesa Rock Rd. to I-15 SB Ramps	22,300
I-15 SB Ramps to I-15 NB Ramps	14,900
I-15 NB Ramps to Champagne Blvd.	11,800
Mountain Meadow Road	
East of Champagne Blvd.	7,200
Twin Oaks Valley Road	
West of Deer Springs Rd.	2,300
Deer Springs Rd. to Buena Creek Rd.	16,600
Buena Creek Rd. to Cassou Rd.	18,200
Cassou Rd. to La Cienega Rd.	19,350
La Cienega Rd. to Windy Wy.	24,500
Windy Wy. to Borden Rd.	24,500
Borden Rd. to Richmar Ave.	30,000
Richmar Ave. to San Marcos Blvd.	28,300
San Marcos Blvd. to SR 78 WB Ramps	41,500
Mesa Rock Road	
South of Deer Springs Road	900
Buena Creek Road	
South Santa Fe Ave. to Monte Vista Dr.	10,900
Monte Vista Dr. to Deer Springs Rd.	10,600
Monte Vista Drive	
Foothills Dr. to Buena Creek Rd.	8,700
Champagne Blvd	
Gopher Canyon Rd. to Lawrence Welk Dr.	5,500
Lawrence Welk Dr. to Mountain Meadow Rd.	6,600
Lawrence Welk Dr	
Lawrence Welk Ct to Champagne Blvd	200
North Centre City Pkwy	
Mountain Meadow Rd to I-15 Ramps	5,900
I-15 Ramps to Country Club Dr.	12,100
Robelini Drive	
Sycamore Ave to S. Santa Fe Ave.	16,400
South Santa Fe Ave.	
Woodland Dr to Buena Creek Rd	18,900
Sycamore Ave	
SR 78 WB Ramps to University Dr	31,200

Footnotes:
Source: LLG Engineers
[a]Volumes counted in 2007 and 2008

TABLE 2.2-3
Existing Segment Operations

Segment	Existing Roadway Class [a]	LOS E Capacity [b]	Existing	
			Volume [c]	LOS
Deer Springs Road				
Twin Oaks Valley Rd. to Meadow Park Ln.	2-Ln Coll.	16,200	**18,400**	**F**
Meadow Park Ln. to Merriam Mountains Pkwy.	2-Ln Coll.	16,200	**16,300**	**F**
Merriam Mountains Pkwy. to Mesa Rock Rd.	2-Ln Coll.	16,200	**16,300**	**F**
Mesa Rock Rd. to I-15 SB Ramps	2-Ln Coll.	16,200	**22,300**	**F**
I-15 SB Ramps to I-15 NB Ramps	2-Ln Coll.	16,200	**14,900**	**E**
I-15 NB Ramps to Champagne Blvd.	4-Ln Coll.	34,200	11,800	A
Mountain Meadow Road				
East of Champagne Blvd.	4-Ln Coll.	34,200	7,200	A
Twin Oaks Valley Road [d]				
West of Deer Springs Rd.	2-Ln Coll.	16,200	2,300	B
Deer Springs Rd. to Buena Creek Rd.	Town Coll. [e]	19,000	**16,600**	**E**
Buena Creek Rd. to Cassou Rd.	Town Coll. [e]	19,000	**18,200**	**E**
Cassou Rd. to La Cienega Rd.	4 Ln Art. [f]	40,000	19,350	B
La Cienega Rd. to Windy Wy.	4 Ln Art. [f]	40,000	24,500	C
Windy Wy. to Borden Rd.	Town Coll. [g]	19,000	24,500	**F**
Borden Rd. to Richmar Ave.	Town Coll. [e]	19,000	**30,000**	**F**
Richmar Ave. to San Marcos Blvd.	4 Ln Art. [f]	40,000	28,300	D
San Marcos Blvd. to SR 78 WB Ramps	6 Ln Prime Art. [g]	60,000	41,500	C
Mesa Rock Road				
South of Deer Springs Road	2-Ln Coll.	16,200	900	A
Buena Creek Road				
South Santa Fe Ave. to Monte Vista Dr.	2-Ln Coll.	16,200	10,900	D
Monte Vista Dr. to Deer Springs Rd.	2-Ln Coll.	16,200	10,600	D
Monte Vista Drive				
Foothills Dr. to Buena Creek Rd.	2-Ln Coll.	16,200	8,700	D
Champagne Blvd				
Gopher Canyon Rd. to Lawrence Welk Dr.	2-Ln Coll.	16,200	5,500	C
Lawrence Welk Dr. to Mountain Meadow Rd.	2-Ln Coll.	16,200	6,600	C
Lawrence Welk Dr				
Lawrence Welk Ct to Champagne Blvd	2-Ln Coll.	16,200	200	A
North Centre City Pkwy				
Mountain Meadow Rd to I-15 Ramps	2-Ln Coll.	16,200	5,900	C
I-15 Ramps to Country Club Dr.	4-Ln Coll.	34,200	12,100	A
Robelini Drive				
Sycamore Ave to S. Santa Fe Ave.	2-Ln Coll.	16,200	**16,400**	**F**
South Santa Fe Ave.				
Woodland Dr to Buena Creek Rd	2-Ln Coll.	16,200	**18,900**	**F**
Sycamore Ave				
SR 78 WB Ramps to University Dr	6 Ln. Art	57,000	31,200	B

Footnotes:

a. Existing Roadway classification assumed as base condition.
b. Capacity of roadway facility for LOS E based on County of San Diego and City of San Marcos facilities.
c. Existing Volume
d. All of Twin Oaks Valley Road within the study area is in the City of San Marcos except the section of Twin Oaks Valley Road north of Deer Springs Road.

TABLE 2.2-3 (CONT.)

e. The roadway is one lane in each direction with a center turn lane. No appropriate roadway classification exists in the City of San Marcos Roadway classification. Hence the County of San Diego classification of Town Collector was assumed.
f. 4 Lane Secondary Arterial, City of San Marcos.
g. 6 Lane Prime Arterial, City of San Marcos.

TABLE 2.2-4
Intersection ILV Operations

Interchange	Peak Hour	Total Operating Level (ILV/Hour)	Capacity
I-15/Deer Springs Road	AM	1056	Under
	PM	1906	Over
SR 78/Twin Oaks Valley Road	AM	1191	Under
	PM	1091	Under
SR 78/San Marcos Boulevard	AM	840	Near
	PM	1187	Under
SR 78/Sycamore Avenue	AM	1365	Near
	PM	1,452	Near

TABLE 2.2-5
Existing Freeway Operations

Freeway Segment	Dir.	# of Lanes	Hourly Capacity[1]	ADT[2]	% K[3]		% D[3]		Truck Factor[4]	Peak Hour Volume[5]		V/C[6]		LOS	
					AM	PM	AM	PM		AM	PM	AM	PM	AM	PM
I-15															
Centre City Pkwy. to Deer Springs Rd.	NB	4	8,000	123,000	0.070	0.075	0.463	0.582	0.868	4,595	6,152	0.574	0.769	B	C
	SB	4	8,000		0.070	0.075	0.537	0.418		5,338	4,419	0.667	0.552	C	B
Deer Springs Rd. to Gopher Canyon Rd.	NB	4	8,000	124,000	0.070	0.075	0.463	0.582	0.868	4,633	6,202	0.579	0.775	B	C
	SB	4	8,000		0.070	0.075	0.537	0.418		5,382	4,455	0.673	0.557	C	B
SR 78															
Mar Vista Dr. to Sycamore Ave.	EB	3	6,000	145,000	0.068	0.077	0.519	0.552	0.962	5,330	6,436	0.888	1.073	D	**F(0)**
	WB	3	6,000		0.068	0.077	0.581	0.534		5,964	6,226	0.994	1.038	**E**	**F(0)**
Sycamore Ave. to San Marcos Blvd.	EB	3	6,000	137,000	0.068	0.077	0.519	0.552	0.962	5,036	6,081	0.839	1.013	D	**F(0)**
	WB	3	6,000		0.068	0.077	0.581	0.534		5,634	5,882	0.939	0.980	**E**	**E**
San Marcos Blvd. to Twin Oaks Valley Rd.	EB	3+1	7,200	145,000	0.068	0.077	0.519	0.552	0.962	5,330	6,436	0.740	0.894	C	D
	WB	3+1	7,200		0.068	0.077	0.581	0.534		5,964	6,226	0.828	0.865	D	D

Footnotes:

1. Capacity calculated at 2,000 vph per lane and 1,200 vph per auxiliary / HOV lane
2. Existing 2007 ADT Volumes from CALTRANS
3. Peak Hour Percentage (K) and Direction Split (D) from CALTRANS "2007 Traffic Volumes", June 2008
4. Truck Factor from "2006 Annual Average Daily Truck Traffic on the California State Highway System", December 2007
5. Peak Hour Volume = ((ADT)(K)(D)/Truck Factor)
6. V/C = ((ADT)(K)(D)/Truck Factor/Capacity)

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

TABLE 2.2-6
Existing Ramp Meter Analysis

Fixed Rate Method						
Location/Condition	**Peak Hour**	**Peak Hour Demand D**	**Flow F**	**Excess Demand E**	**Delay (min)**	**Queue (ft)**
SB San Marcos Boulevard to WB SR 78	-		**1**	**SOV**	**+**	**1 HOV**
Existing	AM PM	347 392	602 602	0 0	0 0	0 0
SB Twin Oaks Valley Road to WB SR 78	-		**1**	**SOV**	**+**	**1 HOV**
Existing	AM PM	559 532	518 518	0 0	0 0	0 0
SB Sycamore Avenue to WB SR 78	-		**2**	**SOV**	**+**	**1 HOV**
Existing	PM	1131	806	325	24	8133
Maximum Delay Method						
SB San Marcos Boulevard to WB SR 78	-	-	**1**	**SOV**	**+**	**1 HOV**
Existing	AM PM	347 392	602 602	0 0	0 0	0 0
SB Twin Oaks Valley Road to WB SR 78			**1**	**SOV**	**+**	**1 HOV**
Existing	AM PM	559 532	518 518	0 0	0 0	0 0
SB Sycamore Avenue to WB SR 78			**2**	**SOV**	**+**	**1 HOV**
Existing	AM	1131	806	226	15	5657

Footnotes:

[a] Flow rates were obtained from Caltrans (See Appendix A, of Traffic Impact Analysis).

TABLE 2.2-7
Project Trip Generation

Land Use	Quantity		Rate		ADT	AM Peak Hour					PM Peak Hour				
						% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
								In	Out	Total			In	Out	Total
Neighborhood 1															
Commercial	10.1	Acres	1,200	/Acre	12,120	4%	6:4	291	194	485	10%	5:5	606	606	1,212
Multi-family (Apartments)	270	DU	6	/DU	1,620	8%	2:8	26	104	130	9%	7:3	102	44	146
Variable Residential	743	DU	8	/DU	5,944	8%	2:8	95	380	476	10%	7:3	416	178	594
Subtotal Neighborhood 1					**19,684**			412	679	1,091			1,124	828	1,952
Neighborhood 2															
Variable Residential	528	DU	8	/DU	4,192	8%	2:8	68	270	338	10%	7:3	295	127	422
Subtotal Neighborhood 2					**4,192**			68	270	338			295	127	422
Neighborhood 3															
Single Family	248	DU	10	/DU	2,520	8%	3:7	59	139	198	10%	7:3	174	74	248
Subtotal Neighborhood 3					**2,520**			59	139	198			174	74	248
Neighborhood 4															
Single Family	371	DU	10	/DU	3,710	8%	3:7	89	208	297	10%	7:3	260	111	371
Subtotal Neighborhood 4					**3,710**			89	208	297			260	111	371
Neighborhood 5															
Single Family	530	DU	10	/DU	5,300	8%	3:7	127	297	424	10%	7:3	371	159	530
Subtotal Neighborhood 5					**5,300**			127	297	424			371	159	530
Estate Residential	10	DU	12	/DU	120	8%	3:7	3	7	10	10%	7:3	8	4	12
Subtotal Estate Residential					**120**			3	7	10			8	4	12
Total Project	**2,700**	**DU**			**35,518**			**758**	**1,600**	**2,358**			**2,232**	**1,303**	**3,535**

Note: Rates obtained from a *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002, published by SANDAG.

TABLE 2.2-8
Intersection Operations – Existing + Project

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Δ V/C	Impact Type	Mitigated Existing + Project	
			Delay	LOS	Delay	LOS			Delay	LOS
1. Mountain Meadows Rd./Champagne Blvd. [c]	Signal	AM	29.0	C	32.7	C	3.6	None	NA	NA
		PM	27.1	C	37.2	D	9.1	None	NA	NA
2. I-15 NB Ramps/Deer Springs Rd.	Signal	AM	26.1	C	44.6	D	18.6	None	NA	NA
		PM	38.2	D	**>100.0**	**F**	**>10.0**	**Direct**	**29.329.6**	**C**
3. I-15 SB Ramps/Deer Springs Rd. [d]	Signal	AM	25.6	C	35.2	D	9.6	None	NA	NA
		PM	22.2	C	**63.7**	**E**	**39.8**	**Direct**	**17.818.0**	**B**
4. Mesa Rock Rd./Deer Springs Rd. [d]	Signal	AM	33.3	C	**96.7**	**F**	**62.5**	**Direct**	**21.722.5**	**C**
		PM	26.8	C	**>100.0**	**F**	**>10.0**	**Direct**	**21.622.5**	**C**
5. Merriam Mountains Pkwy./Deer Springs Rd.	Signal	AM	[e]	[e]	**>100.0**	**F**	**NA**	**Direct**	**25.025.2**	**C**
		PM	[e]	[e]	**>100.0**	**F**	**NA**	**Direct**	**28.128.0**	**C**
6. Meadow Park Ln. /Deer Springs Rd.	Signal	AM	[e]	[e]	**76.2**	**E**	**NA**	**Direct**	**17.0**	**B**
		PM	[e]	[e]	39.9	D	NA	None	NA	NA
7. Twin Oaks Valley Rd./Deer Springs Rd.	AWSC	AM	6.9	A	7.4	A	0.5	None	NA	NA
		PM	9.9	A	**67.1**	**E**	**56.1**	**Direct**	**9.0**	**A**
8. Twin Oaks Valley Rd./Buena Creek Rd. [c]	Signal	AM	19.0	B	26.0	C	6.9	None	NA	NA
		PM	23.2	C	**73.7**	**E**	**49.6**	**Direct**	**24.7**	**C**
9. Monte Vista Rd./Buena Creek Rd.	TWSC	AM	20.6	C	**87.5**	**F**	**65.3**	**Direct**	**19.5**	**B**
		PM	34.5	D	**>100.0**	**F**	**>10.0**	**Direct**	**24.024.1**	**C**
10. Twin Oaks Valley Rd./Cassou Rd.	Signal	AM	24.3	C	41.9	D	17.1	None	NA	NA
		PM	19.8	B	41.5	D	21.2	None	NA	NA
11. Twin Oaks Valley Rd./Borden Rd.	Signal	AM	42.5	D	54.3	D	11.6	None	NA	NA
		PM	30.1	C	37.5	D	7.3	None	NA	NA
12. E. Mission Rd./ Vineyard Rd. [d]	Signal	AM	34.1	C	34.1	C	0.0	None	NA	NA
		PM	34.1	C	34.8	C	0.7	None	NA	NA
13. Twin Oaks Valley Rd./San Marcos Blvd.	Signal	AM	46.7	D	48.2	D	1.5	None	NA	NA
		PM	54.1	D	54.7	D	0.6	None	NA	NA
14. Twin Oaks Valley Rd./SR 78 WB Ramps	Signal	AM	8.0	A	8.0	A	0.0	None	NA	NA
		PM	18.4	B	18.7	B	0.3	None	NA	NA
15. Twin Oaks Valley Rd./SR 78 EB Ramps	Signal	AM	24.1	C	24.5	C	0.4	None	NA	NA
		PM	20.6	C	20.8	C	0.3	None	NA	NA

TABLE 2.2-8 (CONT.)

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Δ V/C	Impact Type	Mitigated Existing + Project	
			Delay	LOS	Delay	LOS			Delay	LOS
16. Knoll Rd./San Marcos Blvd./SR 78 WB Ramps	Signal	AM	33.1	C	33.3	C	0.2	None	NA	NA
		PM	32.5	C	32.9	C	0.3	None	NA	NA
17. San Marcos Blvd./SR 78 EB Ramps	Signal	AM	10.1	B	10.6	B	0.5	None	NA	NA
		PM	9.0	A	10.4	B	1.4	None	NA	NA
18. South Santa Fe Ave./Buena Creek Rd. [d]	Signal	AM	16.0	B	16.9	B	0.9	None	NA	NA
		PM	23.2	C	33.8	C	10.4	None	NA	NA
19. South Santa Fe Ave./Robelini Dr.	Signal	AM	23.3	C	24.7	C	1.3	None	NA	NA
		PM	23.6	C	25.2	C	1.6	None	NA	NA
20. SR 78 WB Ramps/Sycamore Ave.	Signal	AM	26.2	C	26.4	C	0.2	None	NA	NA
		PM	36.0	D	38.6	D	2.7	None	NA	NA
21. SR 78 EB Ramps/Sycamore Ave.	Signal	AM	51.1	D	52.8	D	1.7	None	NA	NA
		PM	24.0	C	26.6	C	2.6	None	NA	NA
22. I-15 NB Ramps/Gopher Canyon Rd.	TWSC	AM	19.7	C	20.3	C	0.7	None	NA	NA
		PM	>100.0	F	>100.0	F	>10.0	Direct	36.735.6	D
23. I-15 SB Ramps/Gopher Canyon Rd.	TWSC	AM	35.3	E	39.4	E	4.6	Direct	37.035.3	D
		PM	35.3	E	42.8	E	6.8	Direct	27.119.9	C
24. Champagne Blvd./Gopher Canyon Rd.	Signal	AM	26.3	C	26.7	C	0.4	None	NA	NA
		PM	24.7	C	25.0	C	0.3	None	NA	NA
25. Champagne Blvd./Old Castle Rd. [c]	Signal	AM	21.5	C	21.9	C	0.4	None	NA	NA
		PM	26.2	C	26.9	C	0.4	None	NA	NA
26. Champagne Blvd./Lawrence Welk Dr.	TWSC	AM	11.6	B	12.4	B	0.7	None	NA	NA
		PM	21.6	C	30.1	D	8.7	None	NA	NA
27. N. Centre City Pkwy./Mesa Rock Rd.	TWSC	AM	9.4	A	9.9	A	0.5	None	NA	NA
		PM	9.3	A	9.7	A	0.4	None	NA	NA
28. N. Centre City Pkwy./Country Club Dr.	Signal	AM	26.7	C	27.2	C	0.0	None	NA	NA
		PM	35.9	D	36.3	D	0.0	None	NA	NA

TABLE 2.2-9
Segment Operations Existing + Project

Segment	Existing Roadway Geometry					Mitigated Roadway Geometry			
	Roadway Classification [a]	LOS E Capacity [b]	Volume	LOS	Impact Type	Roadway Classification [c]	Mitigated LOS E Capacity [d]	Volume	LOS
Deer Springs Road									
Twin Oaks Valley Rd. to Meadow Park Ln.	2-Ln Coll.	16,200	**28,410**	**F**	**Direct**	**4-Ln Major**	**37,000**	**28,410**	**C**
Meadow Park Ln. to Merriam Mountains Pkwy.	2-Ln Coll.	16,200	**27,730**	**F**	**Direct**	**4-Ln Major**	**37,000**	**27,730**	**C**
Merriam Mountains Pkwy. to Mesa Rock Rd.	2-Ln Coll.	16,200	**35,440**	**F**	**Direct**	**4-Ln Major W/Aux Ln [e]**	**47,000**	**35,440**	**C**
Mesa Rock Rd. to I-15 SB Ramps	2-Ln Coll.	16,200	**44,430**	**F**	**Direct**	**5-Ln Major W/Aux Ln [f]**	**57,000**	**44,430**	**C**
I-15 SB Ramps to I-15 NB Ramps	2-Ln Coll.	16,200	**29,000**	**F**	**Direct**	**4-Ln Major**	**37,000**	**29,000**	**C**
I-15 NB Ramps to Champagne Blvd.	4-Ln Coll.	34,200	18,400	B	None	MNR	MNR	MNR	MNR
Mountain Meadow Road									
East of Champagne Blvd.	4-Ln Coll.	34,200	9,820	A	None	MNR	MNR	MNR	MNR
Twin Oaks Valley Road [e]									
West of Deer Springs Rd.	2-Ln Coll.	16,200	2,660	B	None	MNR	MNR	MNR	MNR
Deer Springs Rd. to Buena Creek Rd.	Town Coll. [g]	19,000	**25,930**	**F**	**Direct**	**4 Ln Art. [h, m]**	**40,000**	**25,930**	**C**
Buena Creek Rd. to Cassou Rd.	Town Coll. [g]	19,000	**22,540**	**F**	**Direct**	**4 Ln Art. [h, m]**	**40,000**	**22,540**	**C**
Cassou Rd. to La Cienega Rd.	4 Ln Art. [h]	40,000	22,880	D	None	MNR	MNR	MNR	MNR
La Cienega Rd. to Windy Wy.	4 Ln Art. [h]	40,000	28,030	D	None	MNR	MNR	MNR	MNR
Windy Wy. to Borden Rd.	Town Coll. [g]	19,000	**28,030**	**F**	**Direct**	**4 Ln Art. [h, m]**	**40,000**	**28,030**	**E[j]**
Borden Rd. to Richmar Ave.	Town Coll. [g]	19,000	**32,570**	**F**	**Direct**	**4 Ln Art. [h, m]**	**40,000**	**32,570**	**E[j]**
Richmar Ave. to San Marcos Blvd.	4 Ln Art. [h]	40,000	30,870	D	None	MNR	MNR	MNR	MNR
San Marcos Blvd. to SR 78 WB Ramps	6 Ln Prime Art. [i]	60,000	42,430	D	None	MNR	MNR	MNR	MNR
Mesa Rock Road									
South of Deer Springs Road	2-Ln Coll.	16,200	3,730	B	None	MNR	MNR	MNR	MNR
Buena Creek Road									
South Santa Fe Ave. to Monte Vista Dr.	2-Ln Coll.	16,200	**13,470**	**E**	**Direct**	**2 Ln Coll [j]**	[i]	[i]	**D**
Monte Vista Dr. to Deer Springs Rd.	2-Ln Coll.	16,200	**15,310**	**E**	**Direct**	**2 Ln Coll [j]**	[i]	[i]	**D**
Monte Vista Drive									
Foothills Dr. to Buena Creek Rd.	2-Ln Coll.	16,200	10,600	D	None	MNR	MNR	MNR	MNR

TABLE 2.2-9 (CONT.)

Segment	Existing Roadway Geometry					Mitigated Roadway Geometry			
	Roadway Classification [a]	LOS E Capacity [b]	Volume	LOS	Impact Type	Roadway Classification [c]	Mitigated LOS E Capacity [d]	Volume	LOS
Lawrence Welk Dr. to Mountain Meadow Rd.	2-Ln Coll.	16,200	8,030	D	None	MNR	MNR	MNR	MNR
North Centre City Pkwy									
Mountain Meadow Rd to I-15 Ramps	2-Ln Coll.	16,200	8,510	D	None	MNR	MNR	MNR	MNR
I-15 Ramps to Country Club Dr.	4-Ln Coll.	34,200	13,650	A	None	MNR	MNR	MNR	MNR
Robelini Drive									
Sycamore Ave to S. Santa Fe Ave.	2-Ln Coll.	16,200	**18,500**	**F**	**Direct**	k	k	k	k
South Santa Fe Ave.									
Woodland Dr to Buena Creek Rd	2-Ln Coll.	16,200	**19,370**	**F**	**Direct**	l	l	l	l
Sycamore Ave									
SR 78 WB Ramps to University Dr	6 Ln. Art	57,000	33,300	B	None	MNR	MNR	MNR	MNR

Footnotes:

a. Roadway classification based on existing roadway geometry.
b. Capacity of roadway facility for LOS E based on County of San Diego and City of San Marcos facilities.
c. Roadway classification based on mitigated roadway geometry.
d. LOS E capacity of mitigated roadway.
e. County of San Diego 4-Lane Major Road with Auxiliary lanes. Since this is not a standard roadway classification in San Diego County, the capacity for this facility was estimated to reflect additional capacity due to auxiliary lanes. See text for a more detailed explanation.
f. County of San Diego Prime Arterial. A General Plan Amendment will be required prior to implementing this mitigation measure to reclassify this facility from a Four-Lane Major Road to a Six-Lane Prime Arterial.
g. All of Twin Oaks Valley Road within the study area is in the City of San Marcos except the section of Twin Oaks Valley Road north of Deer Springs Road. The roadway is one lane in each direction with a center turn lane. No appropriate roadway classification exists in the City of San Marcos Roadway classification. Hence the County of San Diego classification of Town Collector was assumed.
h. 4-Lane Secondary Arterial, City of San Marcos.
i. 6 Lane Prime Arterial, City of San Marcos.
j. Mitigation measures are recommended at intersections on either end of this segment to mitigate the direct segment impact to below a level of significance. The mitigation analysis shows the segment travel time before and after the implementation of the intersection mitigation measure and demonstrates that the impact is mitigated to a level below significance based on the reduction of travel time along this segment.
k. Intersection mitigation is recommended at the Robelini Drive/S. Santa Fe Avenue intersection. The mitigation analysis shows the travel time before and after the implementation of this intersection mitigation measure and demonstrates that the impact is mitigated to below a level of significance based on the reduction in travel time along this segment.
l. Intersection mitigation is recommended at the S. Santa Fe Avenue/Buena Creek Drive intersection. The mitigation analysis shows the travel time before and after the implementation of this mitigation measure and demonstrates that the impact is mitigated to below a level of significance based on the reduction in travel time along this segment.
m. Twin Oaks Valley Road is programmed to be widened to 4 lane arterial standards as part of the City of San Marcos CIP Program and project mitigation includes contributing a fair share towards the widening and this improvement is based on the planned geometry in the applicable existing circulation element. For purposes of the cumulative analysis it is appropriate to assume that the planned circulation element improvements are in place.

MNR - Mitigation not required.

TABLE 2.2-10a
Intersection ILV Operations

Interchange	Peak Hour	Existing + Project		Existing + Project + Cumulative Projects	
		Total Operating Level (ILV/Hour)	Capacity	Total Operating Level (ILV/Hour)	Capacity
I-15/Deer Springs Rd.	AM	1,516	Over	2,026	Over
	PM	3,000	Over	3,517	Over
SR 78/Twin Oaks Valley Rd.	AM	1,196	Under	2,036	Over
	PM	1,106	Under	2,483	Over
SR 78/San Marcos Blvd.	AM	858	Under	1,207	Near
	PM	1,261	Near	2,207	Over
SR 78/Sycamore Ave.	AM	1,369	Near	1,389	Near
	PM	1,459	Near	1,505	Over

TABLE 2.2-10b
Near-Term Freeway Operations

Freeway Segment	Dir.	# of Lanes	Hourly Capacity [a]	ADT	Peak Hour Volume [b]		Project Volume		Existing + Project Peak Hour Volume		V/C [c]		LOS		Δ V/C	
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-15																
Center City Pkwy. to Deer Springs Rd.	NB	4	8,000	135,540	4,595	6,152	266	799	4,861	6,951	0.608	0.869	B	D	0.033	0.100
	SB	4	8,000		5,338	4,419	593	448	5,931	4,867	0.741	0.608	C	B	0.074	0.056
Deer Springs Rd. to Gopher Canyon Rd.	NB	4	8,000	127,080	4,633	6,202	130	118	4,763	6,320	0.595	0.790	B	C	0.016	0.015
	SB	4	8,000		5,382	4,455	66	189	5,448	4,644	0.681	0.580	C	B	0.008	0.024
SR 78																
Mar Vista Dr. to Sycamore Ave.	EB	3	6,000	148,730	5,330	6,436	69	242	5,399	6,678	0.900	1.113	D	**F(0)**	0.012	**0.040**
	WB	3	6,000		5,964	6,226	214	110	6,178	6,336	1.030	1.056	**F(0)**	**F(0)**	**0.036**	**0.018**
Sycamore Ave. to San Marcos Blvd.	EB	3	6,000	138,870	5,036	6,081	36	119	5,072	6,200	0.845	1.033	D	**F(0)**	0.006	**0.020**
	WB	3	6,000		5,634	5,882	104	57	5,738	5,939	0.956	0.990	**E**	**E**	**0.017**	0.009
San Marcos Blvd. to Twin Oaks Valley Rd.	EB	3	7,200	145,930	5,330	6,436	16	65	5,346	6,501	0.742	0.903	C	D	0.002	0.009
	WB	3	7,200		5,964	6,226	55	28	6,019	6,254	0.836	0.869	D	D	0.008	0.004

Footnotes:

a. Capacity calculated at 2000 vph per lane and 1200 vph per HOV lane
b. Values calculated in the Existing Conditions table
c. V/C = ((ADT)(K)(D)/Truck Factor/Capacity)

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

TABLE 2.2-11
Ramp Meter Analysis

Location/Condition	Peak Hour	Peak Hour Demand D	Flow F	Excess Demand E	Delay (min)	Queue (ft)
Fixed Rate Method						
SB San Marcos Boulevard to WB SR 78			1	SOV	1	HOV
Existing	AM	347	602	0	0	0
	PM	392	602	0	0	0
Existing + Project	AM	397	602	0	0	0
	PM	417	602	0	0	0
Project Increase	AM	50	NA	0	0	0
	PM	25	NA	0	0	0
Existing + Project + Cumulative Projects	AM	506	602	0	0	0
	PM	623	602	21	2	520
SB Twin Oaks Valley Road to WB SR 78			1	SOV	1	HOV
Existing	AM	559	518	41	5	1023
	PM	532	518	14	2	347
Existing + Project	AM	608	518	90	10	2260
	PM	557	518	39	5	978
Project Increase	AM	50	NA	50	5	1238
	PM	25	NA	25	3	630
Existing + Project + Cumulative Projects	AM	694	518	176	20	4398
	PM	631	518	113	13	2823
SB Sycamore Avenue to WB SR 78			2	SOV	1	HOV
Existing	PM	1131	806	325	24	8133
Existing + Project	PM	1179	806	373	28	9325
Project Increase	PM	48	NA	48	4	1193
Existing + Project + Cumulative Projects	PM	1232	806	426	32	10653
Maximum Delay Method						
SB San Marcos Boulevard to WB SR 78			1	SOV	1	HOV
Existing	AM	347	602	0	0	0
	PM	392	602	0	0	0

TABLE 2.2-11 (CONT.)

Location/Condition	Peak Hour	Peak Hour Demand D	Flow F	Excess Demand E	Delay (min)	Queue (ft)
Existing + Project	AM	397	602	0	0	0
	PM	417	602	0	0	0
Project Increase	AM	50	NA	0	0	0
	PM	25	NA	0	0	0
Existing + Project + Cumulative Projects	AM	506	602	0	0	0
	PM	623	602	21	2	520
SB Twin Oaks Valley Road to WB SR 78			1	SOV	1	HOV
Existing	AM	559	518	41	5	1023
	PM	532	518	14	2	347
Existing + Project	AM	608	518	90	10	2260
	PM	557	518	39	5	978
Project Increase	AM	50	NA	50	5	1238
	PM	25	NA	25	3	630
Existing + Project + Cumulative Projects	AM	694	518	139	15	3470
	PM	631	518	113	13	2823
SB Sycamore Avenue to WB SR 78			2	SOV	1	HOV
Existing	PM	1131	905	226	15	5657
Existing + Project	PM	1179	943	236	15	5895
Project Increase	PM	600	NA	213	13	5332
Existing + Project + Cumulative Projects	PM	1232	986	246	15	6161

TABLE 2.2-12
Intersection Operations – Existing + Project + Cumulative Projects

Intersection	Control Type	Peak Hour	Existing + Project		Existing + Project + Cumulative Projects		Impact Type	Increase in Delay Due to Project
			Delay [a]	LOS [b]	Delay [a]	LOS [b]		
1. Mountain Meadows Rd./Champagne Blvd. [c]	Signal	AM	32.7	C	34.6	C	None	NA
		PM	37.2	C	**68.8**	**E**	**Cumulative**	**9.1**
2. I-15 NB Ramps/Deer Springs Rd.	Signal	AM	20.0 [d]	B	22.2	C	None	NA
		PM	29.6 [d]	C	51.9	D	None	NA
3. I-15 SB Ramps/Deer Springs Rd. [f]	Signal	AM	24.4 [d]	C	25.5	C	None	NA
		PM	18.0 [d]	B	29.3	C	None	NA
4. Mesa Rock Rd./Deer Springs Rd. [f]	Signal	AM	22.5 [d]	C	23.5	C	None	NA
		PM	22.5 [d]	C	24.7	C	None	NA
5. Merriam Mountains Pkwy./Deer Springs Rd.	Signal	AM	25.2 [d]	C	28.1	C	None	NA
		PM	28.0 [d]	C	28.5	C	None	NA
6. Meadow Park Ln. /Deer Springs Rd.	Signal	AM	17.0 [d]	B	17.5	B	None	NA
		PM	14.4 [d]	B	15.2	B	None	NA
7. Twin Oaks Valley Rd./Deer Springs Rd.	AWSC	AM	8.6 [d]	A	11.2	B	None	NA
		PM	9.0 [d]	A	12.8	B	None	NA
8. Twin Oaks Valley Rd./Buena Creek Rd. [c]	Signal	AM	17.9 [d]	B	21.1	C	None	NA
		PM	24.7 [d]	C	31.0	C	None	NA
9. Monte Vista Rd./Buena Creek Rd.	Signal	AM	19.5 [d]	B	20.2	C	None	NA
10. Twin Oaks Valley Rd./Cassou Rd.	Signal	AM	41.9	D	**>100.0**	**F**	**Cumulative**	**17.1**
		PM	41.5	D	**>100.0**	**F**	**Cumulative**	**21.2**
11. Twin Oaks Valley Rd./Borden Rd.	Signal	AM	54.3	D	**>100.0**	**F**	**Cumulative**	**11.6**
		PM	37.4	D	**>100.0**	**F**	**Cumulative**	**7.3**
12. E. Mission Rd./ Vineyard Rd. [f]	Signal	AM	34.1	C	43.4	D	None	NA
		PM	34.8	C	69.4	D	None	NA
13. Twin Oaks Valley Rd./San Marcos Blvd.	Signal	AM	48.2	D	>100.0	F	None [g]	1.5
		PM	54.7	D	>100.0	F	None [g]	0.6

TABLE 2.2-12 (CONT.)

Intersection	Control Type	Peak Hour	Existing + Project		Existing + Project + Cumulative Projects		Impact Type	Increase in Delay Due to Project
			Delay [a]	LOS [b]	Delay [a]	LOS [b]		
14. Twin Oaks Valley Rd./SR 78 WB Ramps	Signal	AM	8.0	A	38.6	C	None	NA
		PM	18.7	B	>100.0	F	None [g]	NA
15. Twin Oaks Valley Rd./SR 78 EB Ramps	Signal	AM	24.5	C	>100.0	E	None [g]	0.4
		PM	20.8	C	>100.0	F	None [g]	0.3
16. Knoll Rd./San Marcos Blvd./SR 78 WB Ramps	Signal	AM	33.3	C	69.8	E	None [g]	NA
		PM	32.9	C	>100.0	F	None [g]	0.3
17. San Marcos Blvd./SR 78 EB Ramps	Signal	AM	10.6	B	55.0	D	None	NA
		PM	10.4	B	51.5	D	None	NA
18. South Santa Fe Ave./Buena Creek Rd. [f]	Signal	AM	16.9	B	33.0	C	None	NA
		PM	33.8	C	48.9	D	None	NA
19. South Santa Fe Ave./Robelini Dr.	Signal	AM	24.7	C	30.1	C	None	NA
		PM	25.2	C	29.7	C	None	NA
20. SR 78 WB Ramps/Sycamore Ave.	Signal	AM	26.4	C	28.2	C	None	NA
		PM	38.6	D	47.1	D	None	NA
21. SR 78 EB Ramps/Sycamore Ave.	Signal	AM	52.8	D	72.4	E	None [g]	1.7
		PM	26.6	C	39.6	D	None	NA
22. I-15 NB Ramps/Gopher Canyon Rd.	Signal	AM	21.7 [d]	C	22.0	C	None	NA
		PM	35.6 [d]	D	46.8	D	None	NA
23. I-15 SB Ramps/Gopher Canyon Rd.	Signal	AM	25.235.3 [d]	D	40.5	D	None	NA
		PM	19.9 [d]	B	24.0	C	None	NA
24. Champagne Blvd./Gopher Canyon Rd.	Signal	AM	26.7	C	27.5	C	None	NA
		PM	25.0	C	29.4	C	None	NA
25. Champagne Blvd./Old Castle Rd. [c]	Signal	AM	21.9	C	24.1	C	None	NA
		PM	26.9	C	28.8	C	None	NA
26. Champagne Blvd./Lawrence Welk Dr.	TWSC	AM	12.4	B	13.1	B	None	NA
		PM	30.1	D	34.2	D	None	NA

TABLE 2.2-12 (CONT.)

27. N. Centre City Pkwy./Mesa Rock Rd.	TWSC	AM	9.9	A	10.2	B	None	NA
		PM	9.7	A	10.4	B	None	NA
28. N. Centre City Pkwy./Country Club Dr.	Signal	AM	27.2	C	33.7	C	None	NA
		PM	36.3	D	37.3	D	None	NA

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Was analyzed as an unsignalized intersection in the May 2007 report. This intersection is currently signalized.
d. Mitigated LOS and Delay with mitigation for direct impact.
e. Increase in delay not shown since the project will mitigate direct impacts at this intersection.
f. There is improvement in the intersection geometry since the May 2007 report was prepared. The improved geometry is assumed for the current (Year 2008) analysis.
g. The project adds less than 2 seconds of delay and per the City of San Marcos and City of Vista significance thresholds, the addition of 2 seconds or less is considered not cumulatively considerable. Therefore, this is not considered a significant impact.

General Notes:

Bold typeface indicates a significant cumulative impact.
NA – Not Applicable, since no significant impact

TABLE 2.2-13
Segment Operations - Existing + Project + Cumulative Projects

Segment	Roadway Geometry [a]	LOS E Capacity [b]	Existing + Project		Existing + Project + Cumulative Projects	
			Volume	LOS [c]	Volume	LOS [c]
Deer Springs Road						
Twin Oaks Valley Rd. to Meadow Park Ln.	4-Ln Major	37,000	28,410	C	33,360	D
Meadow Park Ln. to Merriam Mountains Pkwy.	4-Ln Major	37,000	27,730	C	33,390	D
Merriam Mountains Pkwy. to Mesa Rock Rd.	4-Ln Major W/Aux Ln [d]	47,000	35,440	C	40,970	D
Mesa Rock Rd. to I-15 SB Ramps	5-Ln Major W/Aux Ln [e]	57,000	44,430	C	49,960	D
I-15 SB Ramps to I-15 NB Ramps	4-Ln Major W/Aux Ln [d]	47,000	29,000	B	33,230	C
I-15 NB Ramps to Champagne Blvd.	4-Ln Coll.	34,200	18,400	B	24,490	C
Mountain Meadow Road						
East of Champagne Blvd.	4-Ln Coll.	34,200	9,820	A	15,650	B
Twin Oaks Valley Road [f]						
West of Deer Springs Rd.	2-Ln Coll.	16,200	2,660	B	3,550	B
Deer Springs Rd. to Buena Creek Rd.	4 Ln Art. [g]	40,000	25,930	C	30,960	D
Buena Creek Rd. to Cassou Rd.	4 Ln Art. [g]	40,000	22,540	C	28,590	D
Cassou Rd. to La Cienega Rd.	4 Ln Art. [g]	40,000	22,880	C	28,950	D
La Cienega Rd. to Windy Wy.	4 Ln Art. [g]	40,000	28,030	D	**36,310**	**E**
Windy Wy. to Borden Rd.	4 Ln Art. [g]	40,000	28,030	D	**36,300**	**E**
Borden Rd. to Richmar Ave.	4 Ln Art. [g]	40,000	32,570	D	**46,670**	**F**
Richmar Ave. to San Marcos Blvd.	4 Ln Art. [g]	40,000	30,870	D	**45,660**	**F**
San Marcos Blvd. to SR 78 WB Ramps	6 Ln Prime Art. [h]	60,000	42,430	D	**70,240**	**F**
Mesa Rock Road						
South of Deer Springs Road	2-Ln Coll.	16,200	3,730	B	3,870	B
Buena Creek Road						
South Santa Fe Ave. to Monte Vista Dr.	2-Ln Coll.	16,200	**13,470**	**E**	**19,000**	**F**
Monte Vista Dr. to Deer Springs Rd.	2-Ln Coll.	16,200	**15,310**	**E**	**23,650**	**F**
Monte Vista Drive						
Foothills Dr. to Buena Creek Rd.	2-Ln Coll.	16,200	**10,600**	**D**	**13,600**	**E**

TABLE 2.2-13 (CONT.)

Segment	Roadway Classification [a]	LOS E Capacity [b]	Existing + Project		Existing + Project + Cumulative Projects	
			Volume	LOS [c]	Volume	LOS [c]
Lawrence Welk Dr						
Lawrence Welk Ct to Champagne Blvd	2-Ln Coll.	16,200	320	A	320	A
North Centre City Pkwy						
Mountain Meadow Rd to I-15 Ramps	2-Ln Coll.	16,200	8,510	D	9,090	D
I-15 Ramps to Country Club Dr.	4-Ln Coll.	34,200	13,650	A	14,360	B
Robelini Drive						
Sycamore Ave to S. Santa Fe Ave.	2-Ln Coll.	16,200	**18,500**	**F** [i]	**22,840**	**F**[j]
South Santa Fe Ave.						
Woodland Dr to Buena Creek Rd	2-Ln Coll.	**16,200** [j]	**19,300**[j]	**F**[j]	**19,300**[j]	**F**[j]
Sycamore Ave						
SR 78 WB Ramps to University Dr	6 Ln. Art	57,000	33,300	B	37,580	C

Footnotes:

a. Roadway geometry is the geometry with the project's mitigation improvement.
b. Capacity of roadway facility for LOS E based on County of San Diego or City of San Marcos facilities.
c. Level of Service.
d. County of San Diego 4-Lane Major Road with Auxiliary lanes. Since this is not a standard roadway classification in San Diego County, the capacity for this facility was estimated to reflect additional capacity due to auxiliary lanes. See text for a more detailed discussion
e. 3 through lanes in the eastbound direction, and 2 through lanes in the westbound direction with auxiliary (right-turn) lanes
f. All of Twin Oaks Valley Road within the study area is in the City of San Marcos except the section of Twin Oaks Valley Road north of Deer Springs Road.
g. 4-Lane Secondary Arterial, City of San Marcos.
h. 6-Lane Prime Arterial, City of San Marcos.
i. Mitigation to extend the northbound right lane on Robelini Drive at South Santa Fe Avenue from the current 130 feet in length to 260 feet in length. This doubling of the right-turn lane length will enable 10-12 vehicles to queen before the adjacent left-turn lane is negatively impacted, doubling the current queue length, improving traffic flow through the intersection and thus improving operations on this segment to less than significant impact. The segment mitigation analysis shows the travel time before and after the implementation of this mitigation measure and demonstrates that the impact is mitigated to less than significant based on the reduction in travel time along this segment.
j. The mitigation for the direct project impact is to provide exclusive southbound left and right-turn lanes, at the S. Santa Fe Avenue/Buena Creek Road intersection which will improve traffic flow through the intersection and improving operations on this segment to less than significant. The segment mitigation analysis shows the travel time before and after the implementation of this mitigation measure and demonstrates that the impact is mitigated to less than significant based on the reduction in travel time along this segment.

TABLE 2.2-14
Freeway Mainline Operations - Existing + Project + Cumulative Projects

Freeway Segment	Dir.	# of Lanes	Hourly Capacity [a]	ADT	Existing + Project Peak Hour Volumes [b]		Cumulative Projects Peak Hour Volumes		Existing + Project + Cumulative Projects Peak Hour Volumes		V/C		LOS	
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-15														
Centre City Pkwy. to Deer Springs Rd.	NB	4	8,000	138,650	4,861	6,951	150	434	5,011	7,386	0.626	0.923	C	**E**
	SB	4	8,000		5,931	4,867	311	61	6,242	4,928	0.780	0.616	C	B
Deer Springs Rd. to Gopher Canyon Rd.	NB	4	8,000	128,020	4,763	6,320	87	79	4,850	6,400	0.606	0.800	B	C
	SB	4	8,000		5,448	4,644	74	109	5,522	4,753	0.690	0.594	C	B
SR 78														
Mar Vista Dr. to Sycamore Ave.	EB	3	6,000	163,100	5,399	6,678	895	1,757	6,294	8,435	1.049	1.406	**F(0)**	**F(2)**
	WB	3	6,000		6,178	6,336	910	1,679	7,088	8,015	1.181	1.336	**F(0)**	**F(1)**
Sycamore Ave. to San Marcos Blvd.	EB	3	6,000	155,200	5,072	6,200	1,030	1,969	6,102	8,169	1.017	1.361	**F(0)**	**F(2)**
	WB	3	6,000		5,738	5,939	864	1,576	1,576	7,515	0.263	1.253	A	**F(1)**
San Marcos Blvd. to Twin Oaks Valley Rd.	EB	3+1	7,200	159,600	5,346	6,501	612	1,960	5,958	8,461	0.827	1.175	D	**F(0)**
	WB	3+1	7,200		6,019	6,254	629	742	6,648	6,996	0.923	0.972	**E**	**E**

Footnotes:

a. Capacity calculated at 2,000 vph per lane and 1,200 vph per auxiliary / HOV lane

b. See *Table 9-4 of Traffic Report*

LOS	V/C
A	<0.4
	1
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.4
	6

TABLE 2.2-15
Trip Generation Comparison

Use	Size		Daily Trip Ends (ADT) [a]			AM Peak Hour				PM Peak Hour			
			Rate [b]		Volume	% of ADT	In:Out Split	Volume In	Volume Out	% of ADT	In:Out Split	Volume In	Volume Out
Existing General Plan Land Uses													
Estate Residential	345	DU	12	/DU [c]	4,140	8%	3:7	99	232	10%	7:3	290	124
Neighborhood Commercial	3.5	acres	1200	/acre	4,200	4%	6:4	100	67	10%	5:5	210	210
Industrial Business Park	27.2	acres	200	/acre	5,440	12%	8:2	520	130	12%	2:8	130	520
Total per Existing GP			—		**13,780**	**-**	**-**	**719**	**429**	**-**	**-**	**630**	**854**
Proposed Project													
Total Merriam (Summary)			—		**35,518**	**-**	**-**	**758**	**1,600**	**-**	**-**	**2,232**	**1,303**

Footnotes:

a. Trip Ends are one-way traffic movement, either entering or leaving.

b. Rates obtained from a *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002, published by SANDAG.

c. DU – dwelling units

TABLE 2.2-16
Year 2030 Segment Operations

Segment	Roadway Classification	LOS E Capacity	Year 2030 With Existing General Plan Update Land Uses on Project Site [a]		Year 2030 With Proposed Project [b]		
			Volume	LOS [c]	Volume	LOS [c]	
Deer Springs Road							
Twin Oaks Valley Rd. to Meadow Park Ln.	6-Ln Prime Art.	57,000	43,500	C	47,300	D	
Meadow Park Ln. to Merriam Mountains Pkwy.	6-Ln Prime Art.	57,000	43,300	C	45,100	D	
Merriam Mountains Pkwy. to Mesa Rock Rd.	6-Ln Prime Art.	57,000	45,800	D	49,300	D	
Mesa Rock Rd. to I-15 SB Ramps	6-Ln Prime Art.	57,000	**51,200**	**E**	**55,000**	**E**	
I-15 SB Ramps to I-15 NB Ramps	6-Ln Prime Art.	57,000	**54,900**	**E**	**57,100**	**F**	
I-15 NB Ramps to Champagne Blvd.	6-Ln Prime Art.	57,000	**53,400**	**E**	**54,000**	**E**	
Mountain Meadow Road							
East of Champagne Blvd.	4-Ln Collector	34,200	**38,400**	**F**	**38,300**	**F**	
Twin Oaks Valley Road							
Solar Ln to Deer Springs Rd.	2 Ln. Rural Coll.	16,200	7,100	C	6,900	C	
Deer Springs Rd. to Buena Creek Rd.	4 Ln. Major Art	40,000	**43,300**	**F**	**46,600**	**F**	
Buena Creek Rd. to Cassou Rd. [d]	4 Ln. Major Art	40,000	21,300	C	23,000	C	
Cassou Rd. to Borden Rd. [d]	4 Ln. Major Art	40,000	20,400	C	22,000	C	
Borden Rd. to Richmar Ave. [d]	6-Ln Prime Art.	60,000	24,400	B	24,500	B	
Richmar Ave. to San Marcos Blvd. [d]	6-Ln Prime Art.	60,000	32,300	C	33,500	C	
San Marcos Blvd. to SR 78 WB Ramps [d]	6-Ln Prime Art.	60,000	47,800	D	48,900	D	
Mesa Rock Road							
Deer Springs Rd to N. Centre City Pkwy	2-Ln Collector	16,200	3,500	B	4,600	C	
Buena Creek Road							
S. Santa Fe. Ave. to Monte Vista Dr.	4 Ln. Major Rd.	37,000	24,800	C	25,800	C	
Monte Vista Dr. to Twin Oaks Valley Rd.	4 Ln. Major Rd.	37,000	27,500	C	28,400	C	

Footnotes:

a. Existing General Plan land uses for Merriam site, 6-Lane Deer Springs Road & no extension of Buena Creek Road to Deer Springs Road (at Sarver Lane).
b. Proposed Merriam Project for Merriam site, 6-Lane Deer Springs Road & no extension of Buena Creek Road to Deer Springs Road (at Sarver Lane).
c. Level of Service
d. Roadway segment located in the City of San Marcos.

TABLE 2.2-17
Year 2030 Freeway Operations

Segment	Capacity [a]	Peak Hour	Direction	Year 2030 With Existing General Plan Land Uses on Project Site			Year 2030 With Proposed Project Land Uses			V/C Δ[e]B[e]
				VOL[b]Vol[e]	V/C[c]	LOS[d]	VOL	V/C	LOS	
I-15										
Centre City Pkwy. to	8,000	AM	NB	5,874	0.734	C	5,851	0.731	C	(0.003)
Deer Springs Rd.			SB	18,499	2.312	**F(3)**	18,428	2.303	**F(3)**	(0.009)
-		PM	NB	14,781	1.848	**F(3)**	14,724	1.840	**F(3)**	(0.007)
-			SB	7,214	0.902	D	7,187	0.898	D	(0.003)
Deer Springs Rd. to	8,000	AM	NB	5,601	0.700	C	5,624	0.703	C	0.003
Gopher Canyon Rd.			SB	17,639	2.205	**F(3)**	17,711	2.214	**F(3)**	0.009
-		PM	NB	14,093	1.762	**F(3)**	14,151	1.769	**F(3)**	0.007
-			SB	6,879	0.860	D	6,907	0.863	D	0.003
SR 78										
Mar Vista Dr. to	7,200	AM	EB	6,428	1.071	**F(0)**	6,428	1.071	**F(0)**	—
Sycamore Ave.			WB	5,252	0.875	D	5,252	0.875	D	—
-		PM	EB	6,849	1.142	**F(0)**	6,849	1.142	**F(0)**	—
-			WB	5,914	0.986	**E**	5,914	0.986	**E**	—

Footnotes:

a. Capacity based on 2,000 per mainline, 1200 per HOV lane
b. Vol = Peak hour volume.
c. V/C = Volume / Capacity.
d. LOS = Level of Service.
e. Δ = Project-attributable increase in V/C.

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

TABLE 2.2-17 (CONT.)

Segment	Capacity[a]	Peak Hour	Direction	Year 2030 With Existing General Plan Land Uses on Project Site			Year 2030 With Proposed Project Land Uses			V/C Δ[e]
				VOL[b]	V/C[c]	LOS[d]	VOL	V/C	LOS	
SR 78 (Continued)										
Sycamore Ave. to	7,200	AM	EB	7,443	1.240	**F(0)**	7,443	1.240	**F(0)**	—
San Marcos Blvd.			WB	6,081	1.014	**F(0)**	6,081	1.014	**F(0)**	—
"		PM	EB	7,931	1.322	**F(1)**	7,931	1.322	**F(1)**	—
"			WB	6,848	1.141	**F(0)**	6,848	1.141	**F(0)**	—
San Marcos Blvd. to	7,200	AM	EB	8,204	1.367	**F(2)**	8,204	1.367	**F(2)**	—
Twin Oaks Valley Rd.			WB	6,703	1.117	**F(0)**	6,703	1.117	**F(0)**	—
"		PM	EB	8,742	1.457	**F(3)**	8,742	1.457	**F(3)**	—
"			WB	7,549	1.258	**F(1)**	7,549	1.258	**F(1)**	—

Footnotes:

a. Capacity based on 2,000 per mainline, 1200 per HOV lane
b. Vol = Peak hour volume.
c. V/C = Volume / Capacity.
d. LOS = Level of Service.
e. Δ = Project-attributable increase in V/C.

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

TABLE 2.2-18
Internal Roadways Segment Analysis

Segment	Number of lanes	Roadway Capacity at LOS E		Volume	LOS[a]
		Standard	Estimated[b]		
Merriam Mountains Parkway					
Neighborhood 5 to Meadow Park Lane	2-Ln Road	16200	16200[C]	5300	C
Meadow Park Lane to Neighborhood 3	2-Ln Road	16200	16200[C]	6040	C
Neighborhood 3 to Neighborhood 1	4-Ln Road	34200	27400[D]	7730	A
Neighborhood 1 to Retail	4-Ln Road	37000	29600[E]	15300	B
Retail to Deer Springs Road	4-Ln Road	37000	25900[F]	13770	B
Meadow Park Lane					
Merriam Mountain Pkwy. to Sta 15+00	4-Ln Road	34200	20500[G]	8000	A
Sta 15+00 to Merriam Mountains Parkway	4-Ln Road	37000	25900[F]	8200	A
Lawrence Welk Lane					
Merriam Mountain Pkwy.to Lawrence Welk Dr.	2-Ln Road	16200	6500[H]	320	A

Footnotes:

a. Level of Service
b. A reduced roadway capacity was estimated by reducing the standard capacity for each level of service by a certain percentage.
c. No reduction in capacity was assumed for this segment since the roadway is designed to County of San Diego Rural Light-Collector standards
d. A lower capacity of 80% of the standard is assumed since lower than minimum curve radius (500 feet) is proposed, which will reduce the capacity of this facility.
e. A lower capacity of 80% of the standard is assumed since lower than minimum curve radius (500 feet), steeper than minimum grade and lesser than minimum pavement width are proposed, which will reduce the capacity of this facility.
f. A lower capacity of 70% of the standard is assumed since lower than minimum curve radius (300 feet) are proposed, which will reduce the capacity of this facility.
g. A lower capacity of 60% of the standard is assumed since lower than minimum curve radius (300 feet) and lesser than minimum pavement width are proposed, which will reduce the capacity of this facility.
h. A lower capacity of 40% of the standard is assumed since lower than minimum curve radius (200 feet) and lesser than minimum pavement width are proposed, which will reduce the capacity of this facility.

TABLE 2.2-19
95th Percentile Queue Length In Feet Existing + Project + Cumulative Projects

Intersection	Left	Right
Deer Springs Rd./Merriam Mountains Pkwy.		
Eastbound	150	[a]
Westbound	[a]	225
Southbound	450	125
Deer Springs Rd./Meadow Park Ln.		
Eastbound	175	[a]
Westbound	[a]	[b]
Southbound	200	175

Footnotes:

a. Movement will not exist.
b. Shared through/right movement

TABLE 2.2-20
Estimated Travel Time for Alternate Route from Champagne Blvd. to Deer Springs Rd. Using Internal Project Roadways

Segment	Approx. Length (miles)	Assumed Speed (mph)	Estimated Travel Time
Champagne Boulevard			
Gopher Canyon Rd. to Lawrence Welk Dr.	1.48	50	2 min 18 sec
Lawrence Welk Drive			
Champagne Blvd. to N. Tank Rd.	0.36	25	1 min 26 secs
Merriam Mountains Parkway			
Rock Bluff Ln. to Meadow Park Ln.	1.21	30	2 mins 42 secs
Meadow Park Lane			
Merriam Mountains Pkwy. to Deer Springs Rd.	1.36	40	2 mins 04 secs

Footnotes:

Equation: Time = 60 x Distance / Speed

TABLE 2.2-21
Signal Warrant Analysis

Intersection	Signal Warrant Satisfied?			
	Existing	Existing + Project	Needed in Phase	Existing + Project + Cumulative Projects
Monte Vista Rd./Buena Creek Rd.	Yes	Yes	I	Yes
Deer Springs Rd/Merriam Mountains Pkwy	No	Yes	I	Yes
Meadow Park Ln./Deer Springs Rd	No	Yes	I	Yes
I-15 NB Ramps/Gopher Canyon Rd.	Yes	Yes	I	Yes
I-15 SB Ramps/Gopher Canyon Rd.	Yes	Yes	I	Yes
Champagne Blvd./Lawrence Welk Dr.	No	No	No	No
N. Centre City Pkwy./Mesa Rock Rd.	No	No	No	No

Footnote:
The signals shall not be installed unless signal warrants are met.

TABLE 2.2-22
Equivalent Dwelling Units

Land Use	Quantity		Rate		ADT	EDU
Phase I						
Apartments	270	DU	6	/DU	1,620	
Variable Residential	820	DU	8	/DU	6,560	
Subtotal Phase I					*8,180*	*944*
Phase II						
Single Family	248	DU	10	/DU	2,480	
Variable Residential	451	DU	8	/DU	3,608	
Subtotal Phase II					*6,088*	*702*
				Subtotal Phases I & II	**14,268**	**1,646**
Phase III						
Single Family	371	DU	10	/DU	3,710	
Subtotal Phase III					*3,710*	*428*
				Subtotal Phases I, II & III	**17,978**	**2,074**
Phase IV						
Single Family	530	DU	10	/DU	5,300	
Estate Residential	10	DU	12	/DU	120	
Commercial	10.1	Acres	1,200	/Acre	12,120	
				Subtotal Phase IV	*17,540*	*2,024*
Total Residential					**23,398**	**2,700**
Total Project					**35,518**	**4,098**

TABLE 2.2-23
Summary of Significant Impacts and Mitigation Measures

Location	Jurisdiction	Impact Type	Mitigation Measure (mitigated to below a level of significance = MBS, significant and unmitigated = SU*)
Intersections			
I-15 NB Ramps/Deer Springs Road	Caltrans	Direct	Widen the I-15/Deer Springs Road interchange to provide the lane configuration resulting from the Caltrans Project Study Report process (currently underway). This configuration could be the following based on work completed to date on the PSR: NB – Two left-turn lanes and two right-turn lanes WB – Two through lanes and one right-turn lane EB – Two left-turn lanes and two through lanes. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase. (M-TR-1) **SU**
I-15 SB Ramps/Deer Springs Road	Caltrans	Direct	Widen the I-15/Deer Springs Road interchange to provide the lane configuration resulting from the Caltrans Project Study Report process (currently underway) This configuration could be the following based on work completed to date on the PSR: SB – One left-turn lane and two right-turn lanes WB – Two through lanes and one left-turn lane EB – Three through lanes and two right-turn lanes This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-2) **SU**
Mesa Rock Road/Deer Springs Road	San Diego County	Direct	Improve the intersection to provide the following geometry: SB – One left-turn lane and one shared through/right lane WB – One left-turn lane, three through lanes, and one right-turn lane NB – One left-turn lane and one shared through/right-turn lane EB – One left-turn lane, two through lanes, and one shared through/right-turn lane. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-3). **MBS**
Twin Oaks Valley Road/Deer Springs Road	City of San Marcos	Direct	If not completed by another development, ensure the following lane configuratio improvements are implemented to the satisfaction of the County of San Diego and City of San Marcos Department of Public Works. • SB – One through lane and one shared through/right lane • NB – One left-turn lane and two through lanes • EB – One left-turn lane and one right-turn lane. This mitigation shall be implemented prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-4). **SU**
Twin Oaks Valley Road/Buena Creek Road	City of San Marcos	Direct	If not completed by another development, ensure the following lane configuratio improvements are implemented to the satisfaction of the City of San Marcos Department of Public Works. • SB – One left-turn lane, two through lanes, and one right-turn lane • WB – One shared left/through/right lane • NB – One left-turn lane, one through lane, and one shared through/right lane • EB – Two left-turn lanes and one shared through/right lane. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-5) **SU**

TABLE 2.2-23 (CONT.)

Location	Jurisdiction	Impact Type	Mitigation Measure (mitigated to below a level of significance = MBS, significant and unmitigated = SU*)
Monte Vista Road/Buena Creek Road	San Diego County	Direct	If not completed by another development, ensure a traffic signal and the following lane configuration improvements are implemented to the satisfaction o the County of San Diego Department of Public Works. A detailed signal warrant analysis shall be conducted prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. The signal shall not be installed until warrants are met. • SB – One shared left/right lane • WB – One through lane and one right-turn lane with right-turn-overlap • EB – One left-turn lane and one through lane. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-6) **MBS**
Merriam Mountains Parkway/Deer Springs Road	San Diego County	Direct	Provide a traffic signal and implement the following lane configuration improvements to the satisfaction of the County of San Diego Department of Public Works. A detailed signal warrant analysis shall be conducted prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. The signal shall not be installed until warrants are met. SB – Two left-turn lanes and one right-turn lane WB – One right-turn lane and two through lanes EB – Two left-turn lanes and two through lanes. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.(M-TR-7) **MBS**
Meadow Park Lane/Deer Springs Road	San Diego County	Direct	Provide a traffic signal and implement the following lane configuration improvements to the satisfaction of the County of San Diego Department of Public Works. A detailed signal warrant analysis shall be conducted prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. The signal shall not be installed until warrants are met. • SB – Two left-turn lanes and one right-turn lane • WB – One through lane, one shared through/right lane and one right-turn lane • EB – One left-turn lane and two through lanes. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-8) **MBS**
I-15 SB Ramps/Gopher Canyon Road	Caltrans	Direct	If not completed by another development, ensure the installation of a new traffic signal. A detailed signal warrant analysis shall be conducted prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. The signal shall not be installed until warrants are met. (M-TR-9) **SU**
I-15 NB Ramps/Gopher Canyon Road	Caltrans	Direct	If not completed by another development, ensure the installation of a new traffic signal. A detailed signal warrant analysis shall be conducted prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. The signal shall not be installed until warrants are met. (M-TR-10) **SU**
Roadway Segments			
Deer Springs Road from Twin Oaks Valley Road to Meadow Park Lane	San Diego County	Direct	Widen existing roadway to San Diego County 4-Lane Major Road standards. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-11) **MBS**
Deer Springs Road	San Diego	Direct	Widen existing roadway to San Diego County 4-Lane Major Road standards.

TABLE 2.2-23 (CONT.)

Location	Jurisdiction	Impact Type	Mitigation Measure (mitigated to below a level of significance = MBS, significant and unmitigated = SU*)
from Meadow Park Lane to Merriam Mountains Parkway	County		Provide a westbound left-turn lane at the entrance to "Golden Door" located south of Deer Springs Road. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-12) **MBS**
Deer Springs Road from Merriam Mountains Parkway to Mesa Rock Road	San Diego County	Direct	Widen existing roadway to San Diego County 4-Lane Major Road standards with auxiliary lane. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-13) **MBS**
Deer Springs Road from Mesa Rock Road to I-15 SB Ramps	San Diego County/Caltrans	Direct	Widen existing roadway to five lanes plus auxiliary lanes consistent with the final determination of the Caltrans PSR requirements. The actual configuration will be finalized in the Caltrans PSR. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-14) **SU**
Deer Springs Road from I-15 SB Ramps to I-15 NB Ramps	San Diego County/Caltrans	Direct	Widen existing roadway to five lanes plus auxiliary lanes consistent with the final determination of the Caltrans PSR requirements. The actual configuration will be finalized in the Caltrans PSR. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-15) **SU**
Twin Oaks Valley Road from Deer Springs Road to Buena Creek Road	City of San Marcos	Direct	Construction of intersection mitigations measures M-TR-4 and M-TR-5 will mitigate the segment impact by providing additional capacity at two signalized intersections along this segment in conjunction with payment of a fair share towards the City of San Marcos Twin Oaks Valley Road-widening CIP project. If not completed by another development, ensure the above mitigation is implemented to the satisfaction of the City of San Marcos Department of Public Works. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-16) **SU**
Twin Oaks Valley Road from Buena Creek Road to Cassou Road	City of San Marcos	Direct	Construction of intersection mitigations measures M-TR-5 and M-TR-7 will mitigate the segment impact by providing additional capacity at the northern end of this segment in conjunction with payment of a fair share towards the City of San Marcos Twin Oaks Valley Road-widening CIP project. If not completed by another development, ensure the above mitigation is implemented to the satisfaction of the City of San Marcos Department of Public Works. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I. (M-TR-17) **SU**
Twin Oaks Valley Road from Borden Road to Richmar Avenue	City of San Marcos	Direct	If not completed by others or the City of San Marcos, contribute a fair share towards the City-planned widening of the existing roadway to 4-Lane Major Road Standards. This impact is not considered fully mitigated. This mitigation measure is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase II. (M-TR-18) **SU**
Buena Creek Road from South Santa Fe Avenue to Monte Vista Drive	San Diego County	Direct	Mitigation measures M-TR-6 and M-TR-10 will mitigate this segment impact by providing additional capacity at one of the signalized intersections along this segment. If not completed by another development, ensure the above mitigation is implemented to the satisfaction of the County of San Diego Department of Public Works. This mitigation is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase II. (M-TR-19) **MBS**
Buena Creek Road	San Diego	Direct	Mitigation measures M-TR-5 and M-TR-6 will mitigate this segment impact by

TABLE 2.2-23 (CONT.)

Location	Jurisdiction	Impact Type	Mitigation Measure (mitigated to below a level of significance = MBS, significant and unmitigated = SU*)
from Monte Vista Drive to Deer Springs Road	County		providing additional capacity at the signalized intersection along this segment. If not completed by another development, ensure the above mitigation is implemented to the satisfaction of the County of San Diego Department of Public Works. This mitigation is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase I.(M-TR-20) **MBS**
Robelini Drive from Sycamore Avenue to South Santa Fe Avenue	San Diego County	Direct	Extend the NB right-turn lane on Robelini Drive at South Santa Fe Avenue from the current 130 feet in length to 260 feet in length. This doubling of the right-turn lane length will enable 10–12 vehicles to queue before the adjacent left-turn lane is negatively impacted, allowing for twice the current queue length. (See Appendix M for a Conceptual Plan of the Improvement). This mitigation is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase II. (M-TR-21) **MBS**
South Santa Fe Avenue from Woodland Drive to Buena Creek Road	San Diego County	Direct	Improve the South Santa Fe Avenue/Buena Creek Road intersection to provide dedicated right- and left-turn lanes on SB Buena Creek Road. This improvement will add capacity along the impacted segment. This mitigation is required prior to issuance of a certificate of occupancy for the first dwelling unit in Phase IV. (M-TR-22) **MBS**
Twin Oaks Valley Road from Windy Way to Borden Road	City of San Marcos	Direct	If not completed by others or the City of San Marcos, contribute a fair share towards the City planned widening of the existing roadway to 4-Lane Major Road standards. This impact is not considered fully mitigated. If not completed by another development, ensure the above mitigation is implemented to the satisfaction of the City of San Marcos Department of Public Works. (M-TR-23) **SU**
Freeway Mainline			
SR 78 from Mar Vista Drive to Sycamore Avenue	Caltrans	Direct	Contribute a fair share towards adding one HOV lane in each direction on SR 78 between Mar Vista Drive and Sycamore Avenue. (M-TR-24) **SU**
SR 78 from Sycamore Avenue to San Marcos Boulevard	Caltrans	Direct	Contribute a fair share towards adding one HOV lane in each direction on SR 78 between Sycamore Avenue and San Marcos Boulevard. (M-TR-25) **SU**
Freeway Ramps			
Sycamore Avenue/SR 78 WB on-ramp (Caltrans/City of Vista)	Caltrans	Direct	Add a third Single Occupancy Vehicle (SOV) lane. The current ramp configuration is two SOV lanes and one HOV lane. It is not Caltrans common practice to allow three SOV lanes and one HOV lane. (M-TR-26) **SU**
Intersections			
Mountain Meadow Road/Champagne Boulevard	County of San Diego	Cumulative	Payment of appropriate TIF by participation in a TIF program on a "per dwelling unit" basis based on issuance of building permits. This mitigation measure is required by payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits. (M-TR-27) **MBS**
Twin Oaks Valley Road/Cassou Road	City of San Marcos	Cumulative	Contribute a fair share to the City of San Marcos towards widening Twin Oaks Valley Road to four lanes through the Cassou Road intersection. This mitigation measure is required by payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits.(M-TR-28) **SU**
Twin Oaks Valley Road/Borden Road	City of San Marcos	Cumulative	Contribute a fair share to the City of San Marcos towards the planned widening of the SB approach to provide one left-turn lane, two through lanes, and one right-turn lane; and widening the NB lane to provide one left-turn lane, one through lane, and one through/right-turn lane. This mitigation

TABLE 2.2-23 (CONT.)

Location	Jurisdiction	Impact Type	Mitigation Measure (mitigated to below a level of significance = MBS, significant and unmitigated = SU*)
			measure is required by payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits. (M-TR-29) **SU**
Roadway Segments			
Twin Oaks Valley Road from La Cienega Road to Windy Way	City of San Marcos	Cumulative	Contribute a fair share to the City of San Marcos towards the CIP widening of Twin Oaks Valley Road to four lanes. Widening to six lanes would be needed to accommodate existing + project + cumulative traffic. Existing right-of-way is not available for this improvement and there are no known plans to acquire such right-of-way. In addition, there is no established program to contribute to improvement of this roadway segment to six lanes. (M-TR-30) **SU**
Twin Oaks Valley Road from Windy Way to Borden Road	City of San Marcos	Cumulative	Contribute a fair share to the City of San Marcos towards the CIP widening of Twin Oaks Valley Road to four lanes. Widening to six lanes would be needed to accommodate existing + project + cumulative traffic. Existing right-of-way is not available for this improvement and there are no known plans to acquire such right-of-way. In addition, there is no established program to contribute to improvement of this roadway segment to six lanes. (M-TR-31) **SU**
Twin Oaks Valley Road from Borden Road to Richmar Avenue	City of San Marcos	Cumulative	Contribute a fair share to the City of San Marcos towards the CIP widening of Twin Oaks Valley Road to four lanes. Widening to six lanes would be needed to accommodate existing + project + cumulative traffic. Existing right-of-way is not available for this improvement and there are no known plans to acquire such right-of-way. In addition, there is no established program to contribute to improvement of this roadway segment to six lanes. (M-TR-32) **SU**
Twin Oaks Valley Road from Richmar Avenue to San Marcos Boulevard	City of San Marcos	Cumulative	Contribute a fair share to the City of San Marcos towards the CIP widening of Twin Oaks Valley Road to a six-lane Major Arterial. This mitigation measure is required by payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits.(M-TR-33) **SU**
Twin Oaks Valley Road from San Marcos Boulevard to SR 78 WB Ramps	City of San Marcos	Cumulative	Mitigation of this cumulative impact would require widening Twin Oaks Valley Road to eight lanes. The roadway is already constructed to its ultimate six-lane circulation element classification and there are no known plans by the City of San Marcos to process a circulation element amendment to change the classification. In addition, there is no established program to contribute towards improvement of this roadway segment to eight lanes. (M-TR-34) **SU**
Buena Creek Road from South Santa Fe Avenue to Monte Vista Drive	San Diego County	Cumulative	Payment of appropriate TIF. This mitigation measure is required by participation in a TIF program on a per dwelling unit basis based on issuance of building permits. (M-TR-35) **MBS**
Buena Creek Road from Monte Vista Drive to Deer Springs Road	San Diego County	Cumulative	Payment of appropriate TIF. This mitigation measure is required by participation in a TIF program on a per dwelling unit basis based on issuance of building permits. (M-TR-36) **MBS**
Monte Vista Drive from Foothills Drive to Buena Creek Road	San Diego County	Cumulative	Payment of appropriate TIF. This mitigation measure is required by participation in a TIF program on a per dwelling unit basis based on issuance of building permits. (M-TR-37) **MBS**
Robelini Drive from Sycamore Avenue to South Santa Fe Avenue	San Diego County	Cumulative	Payment of appropriate TIF. This mitigation measure is required by participation in a TIF program on a per dwelling unit basis based on issuance of building permits. (M-TR-38) **MBS**

TABLE 2.2-23 (CONT.)

Location	Jurisdiction	Impact Type	Mitigation Measure (mitigated to below a level of significance = MBS, significant and unmitigated = SU*)
Freeway Mainline			
I-15 from Centre City Parkway to Deer Springs Road	Caltrans	Cumulative	Contribute a fair share towards the future improvements on I-15 between Centre City Parkway and Deer Springs Road. In addition, the improvements to the I-15/Deer Springs Road interchange will partially mitigate this impact proportional to the relationship between the amount of traffic the project contributes and non-project-related traffic. This mitigation measure is required by payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits. (M-TR-39) **SU**
SR 78 from Mar Vista Drive to Twin Oaks Valley Road	Caltrans	Cumulative	Contribute a fair share towards the future improvements on SR 78 between Mar Vista Drive and Twin Oaks Valley Road proportional to the relationship between the amount of traffic the project contributes and non-project-related traffic. This mitigation measure is required by payment of a fair share contribution on a per dwelling unit basis based on issuance of building permits. (M-TR-40) **SU**
Freeway Ramps			
Sycamore Avenue/SR 78 WB on-ramp	Caltrans	Cumulative	Add a third SOV (Single Occupancy Vehicle) lane. The current ramp configuration is two SOV lanes and one HOV lane. It s not Caltrans common practice to allow three SOV lanes and one HOV lane. Neither the City of Vista, nor Caltrans has plans to add lanes to this ramp and there is no established program to contribute to the improvement of this on-ramp. (M-TR-41) **SU**
Twin Oaks Valley Road/SR 78 WB on-ramp	Caltrans	Cumulative	Twin Oaks Valley Road/SR 78 WB on-ramp (Caltrans) – Add a second SOV (Single Occupancy Vehicle) lane. Neither the City of San Marcos, nor Caltrans has plans to add lanes to this ramp and there is no established program to contribute to the improvement of this on-ramp. (M-TR-42) **SU**
Construction Traffic	San Diego County	Short-term	Construction Traffic (San Diego County) – Prepare and implement traffic control plans to manage construction traffic. Also ensure that the County of San Diego designated truck routes are utilized by heavy vehicles. Specific measures that will be incorporated into the traffic control plans include: (a) Always keeping one lane open in each direction on Deer Springs Road. Neither direction of travel will be closed at any given time. (b) Ensuring heavy trucks utilize the Deer Springs Road/I-15 interchange (as opposed to Twin Oaks Valley Road) to provide access to the project site. (c) Carrying out construction activity during off-peak hours to the extent possible per the discretion of the County Traffic Engineer. (d) Temporary traffic signals are not expected to be necessary but will be installed, should volumes and safety concerns warrant such an installation, once more specific traffic data is available. (e) Providing easy-to-follow detour routes. (f) Maintaining access to the nearby community. (g) Providing plans showing freeway signage for advance warning of construction. (h) Limiting to the extent possible the use of any pedestrian and bicycle facility in the area. This mitigation is required prior to issuance of the first grading permit.(M-TR-43) **MBS**

* A Statement of Overriding Considerations would be required for all significant and unmitigated (SU) impacts

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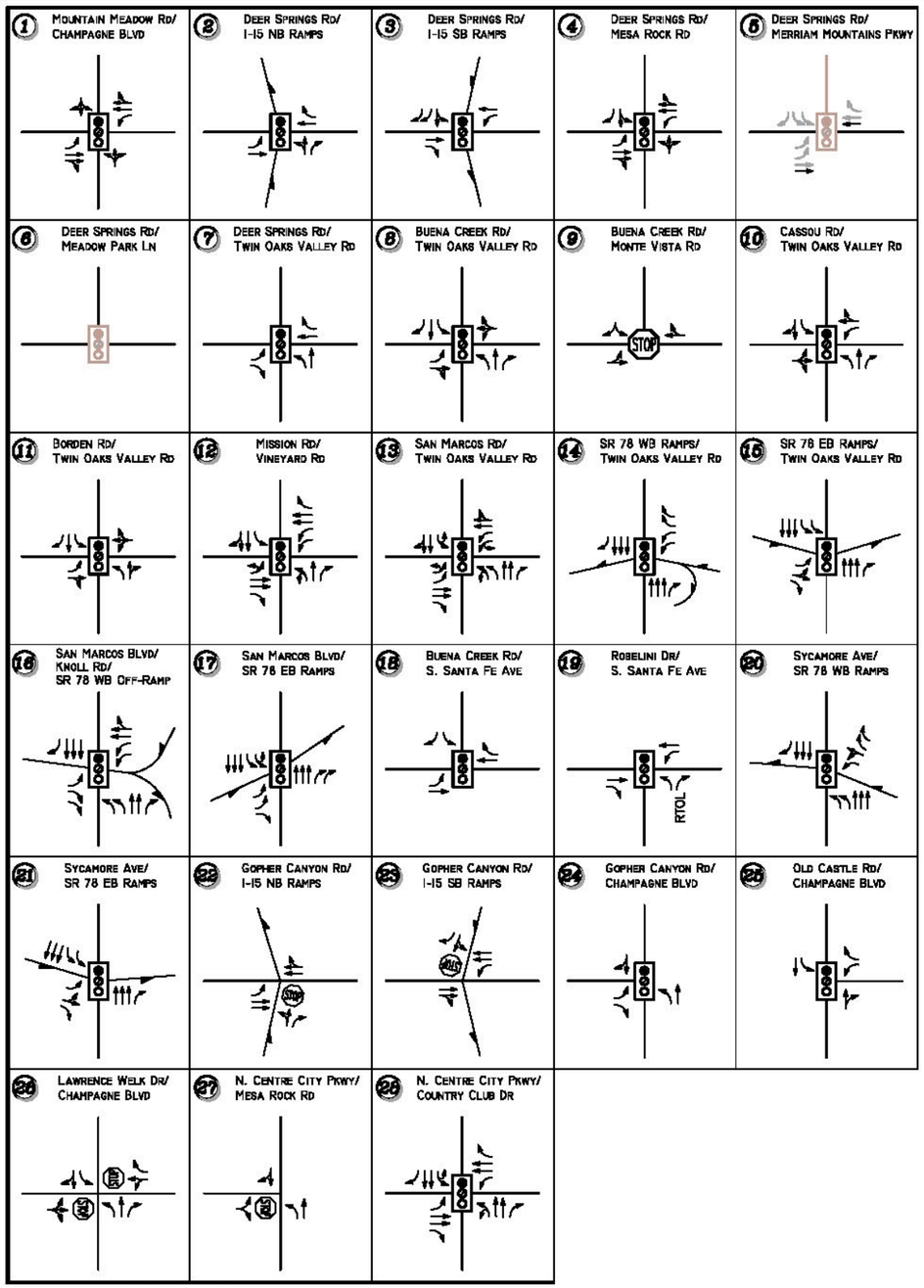
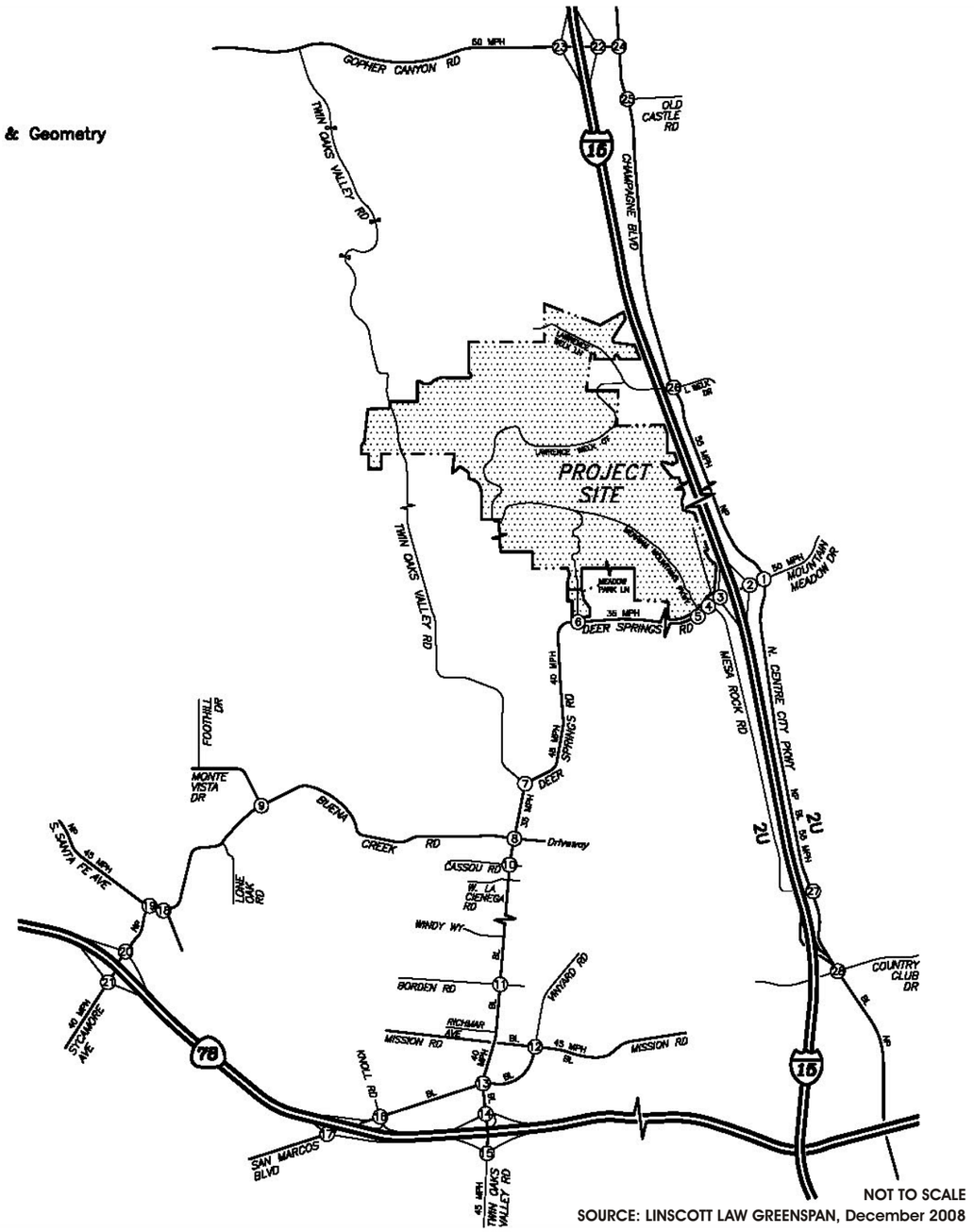


LEGEND

- Traffic Signal
- Future Traffic Signal & Geometry
- All-Way Stop
- Two-Way Stop
- RTOL – Right Turn Overlap
- FREE – Free movement
- ----- – Future Roadway



Existing Conditions Diagram

FIGURE 2.2-1

MERRIAM MOUNTAINS SPECIFIC PLAN EIR

N

LEGEND

— · · — – Project Boundary

Study Area Intersections List

1. Mountain Meadows Rd./Champagne Blvd.
2. I–15 NB Ramps/Deer Springs Rd.
3. I–15 SB Ramps/Deer Springs Rd.
4. Mesa Rock Rd./Deer Springs Rd.
5. Twin Oaks Valley Rd./Deer Springs Rd.
6. Twin Oaks Valley Rd./Buena Creek Rd.
7. Monte Vista Rd./Buena Creek Rd.
8. Twin Oaks Valley Rd./Cassou Rd.
9. Twin Oaks Valley Rd./Borden Rd.
10. E. Mission Rd./ Vineyard Rd.
11. Twin Oaks Valley Rd./San Marcos Blvd.
12. Twin Oaks Valley Rd./SR 78 WB Ramps
13. Twin Oaks Valley Rd./SR 78 EB Ramps
14. Knoll Rd./San Marcos Blvd./SR 78 WB Ramps
15. San Marcos Blvd./SR 78 EB Ramps
16. Merriam Mountains Pkwy./Deer Springs Rd.
17. Meadow Park Ln. /Deer Springs Rd.
18. South Santa Fe Ave./Buena Creek Rd.
19. South Santa Fe Ave./ Robelini Dr.
20. SR 78 WB Ramps/Sycamore Ave.
21. SR 78 EB Ramps/Sycamore Ave.
22. I–15 NB Ramps/Gopher Canyon Rd.
23. I–15 SB Ramps/Gopher Canyon Rd.
24. Champagne Blvd./Gopher Canyon Rd.
25. Champagne Blvd./Old Castle Rd.
26. Champagne Blvd./Lawrence Welk Dr.
27. N. Centre City Pkwy./Mesa Rock Rd.
28. N. Centre City Pkwy./Country Club Dr.

GOPHER CANYON RD
TWIN OAKS VALLEY RD
OLD CASTLE RD
CHAMPAGNE BLVD
15
LAWRENCE WELK LN
L. WELK DR
LAWRENCE WELK CT
PROJECT SITE
MERRIAM MOUNTAINS PKWY
MEADOW PARK LN
MOUNTAIN MEADOW DR
DEER SPRINGS RD
MESA ROCK RD
N. CENTRE CITY PKWY
FOOTHILL DR
MONTE VISTA DR
BUENA CREEK RD
DWY
CASSOU
W. LA CIENEGA RD
WINDY WY
BORDEN RD
VINYARD RD
COUNTRY CLUB DR
S. SANTA FE AVE
ROBELINI DR
LONE OAK RD
SYCAMORE AVE
78
RICHMAR AVE
MISSION RD
MISSION RD
KNOLL RD
SAN MARCOS BLVD
TWIN OAKS VALLEY RD
NORTH
NOT TO SCALE

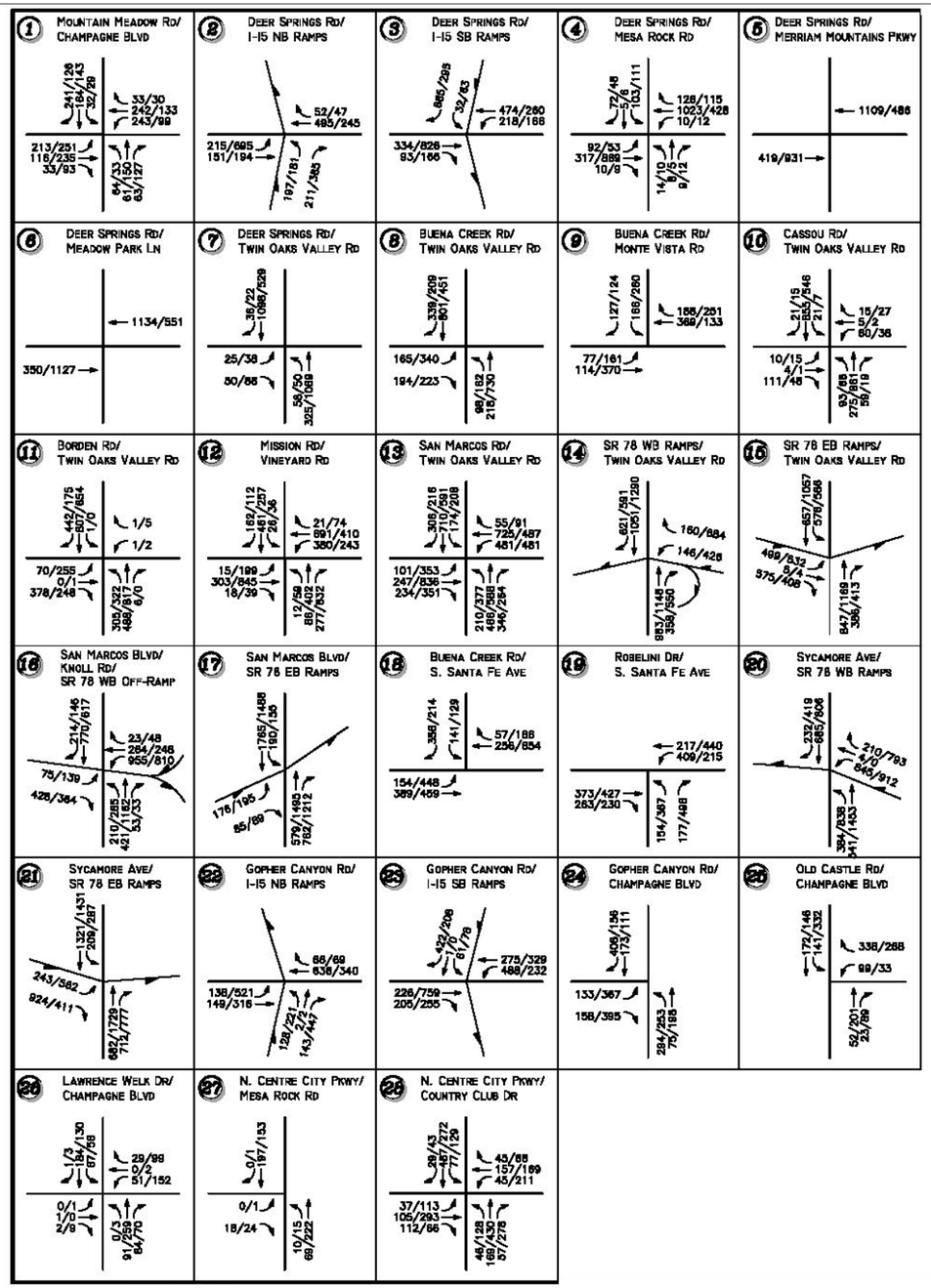
SOURCE: LINSCOTT LAW GREENSPAN, April 2007

Study Area Intersections

FIGURE 2.2-2

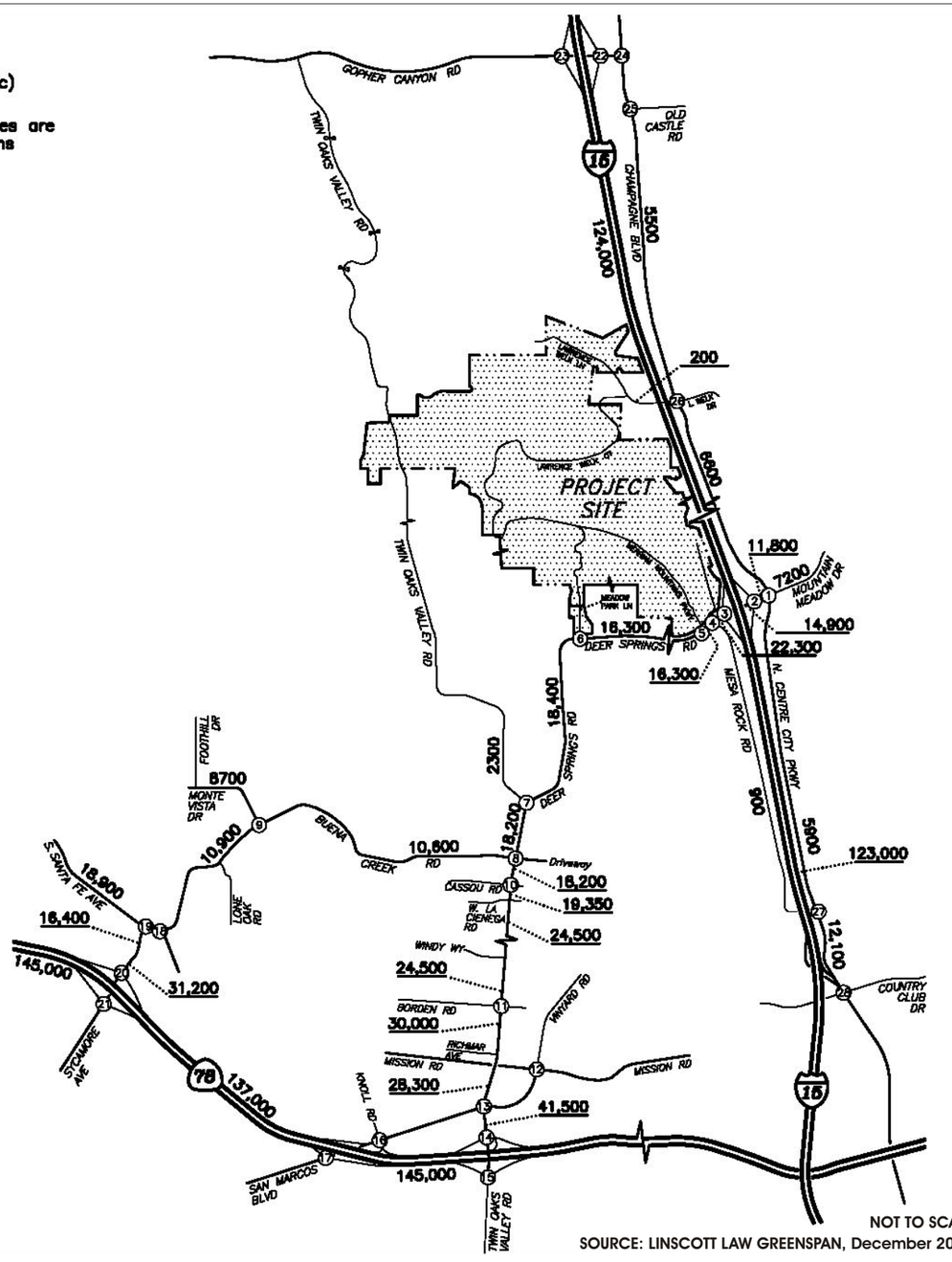
MERRIAM MOUNTAINS SPECIFIC PLAN EIR

N



NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections



NOT TO SCALE

SOURCE: LINSCOTT LAW GREENSPAN, December 2008

Existing Traffic AM/PM Peak Hour Intersection Volumes & ADT

FIGURE 2.2-3

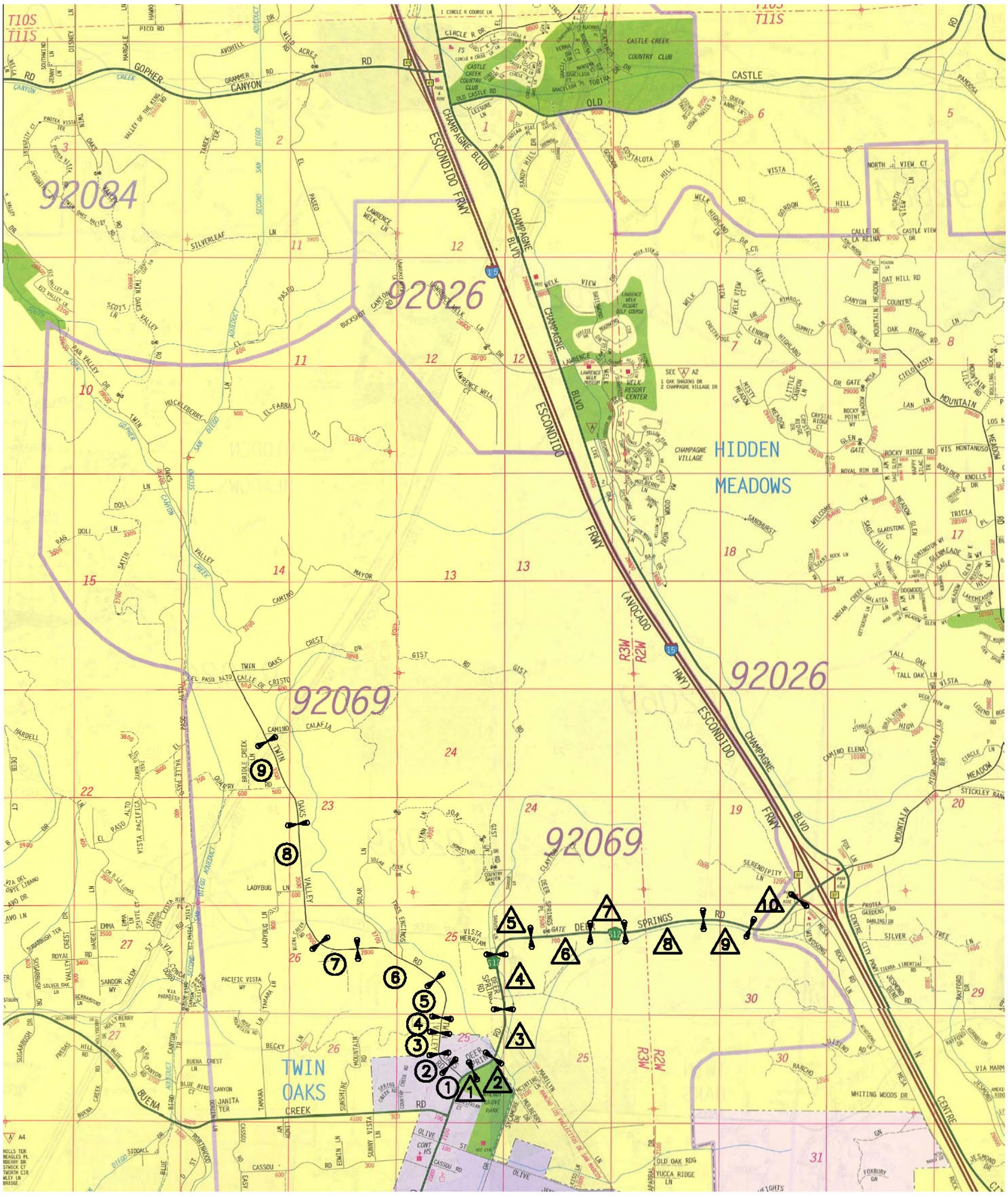
MERRIAM MOUNTAINS SPECIFIC PLAN EIR

LEGEND

⊗ = Section Number – Twin Oaks Valley Road

⚠ = Section Number – Deer Springs Road

NOTE: See tables 3–1 and 3–2 for existing conditions description corresponding to each number.



See Appendix M - Traffic Impact Analysis - Table 3-1 and 3-2

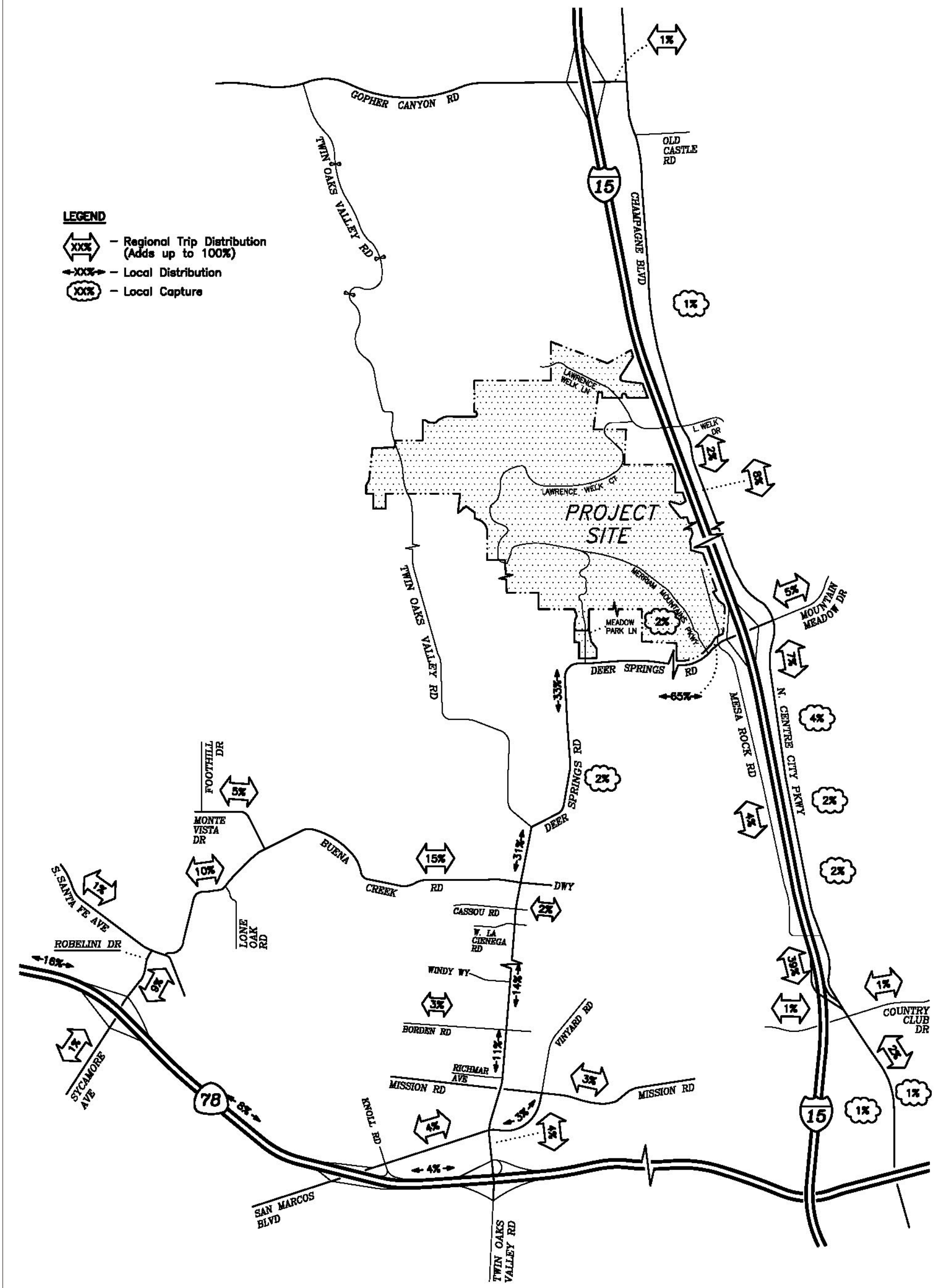
SOURCE: LINSCOTT LAW GREENSPAN, December 2008

Existing Conditions on Twin Oaks Valley Rd. & Deer Springs Rd.

FIGURE 2.2-4

MERRIAM MOUNTAINS SPECIFIC PLAN EIR

N



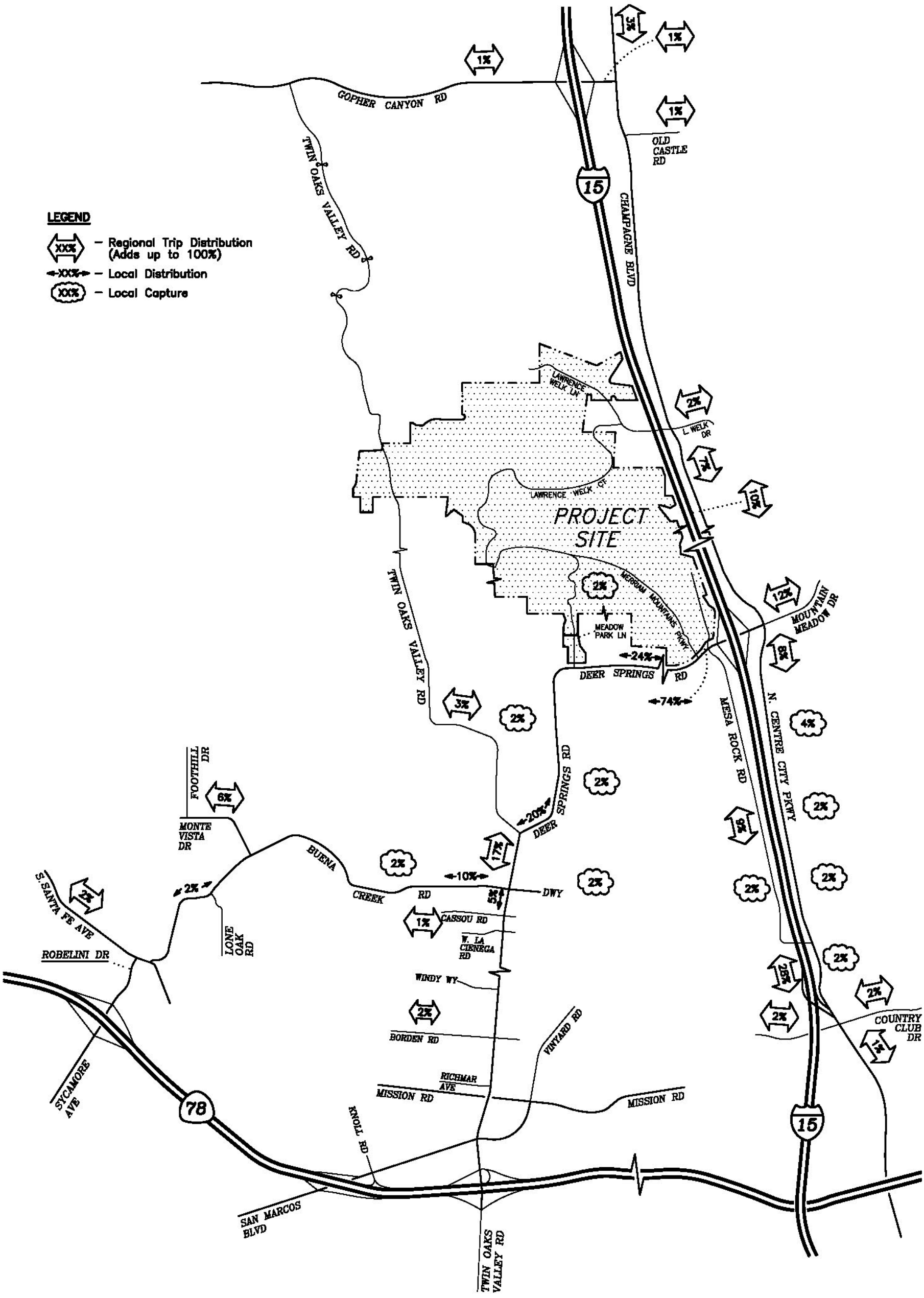
SOURCE: LINSCOTT LAW GREENSPAN, December 2008

Regional Distribution Residential Land Uses

FIGURE 2.2-5

MERRIAM MOUNTAINS SPECIFIC PLAN EIR

N



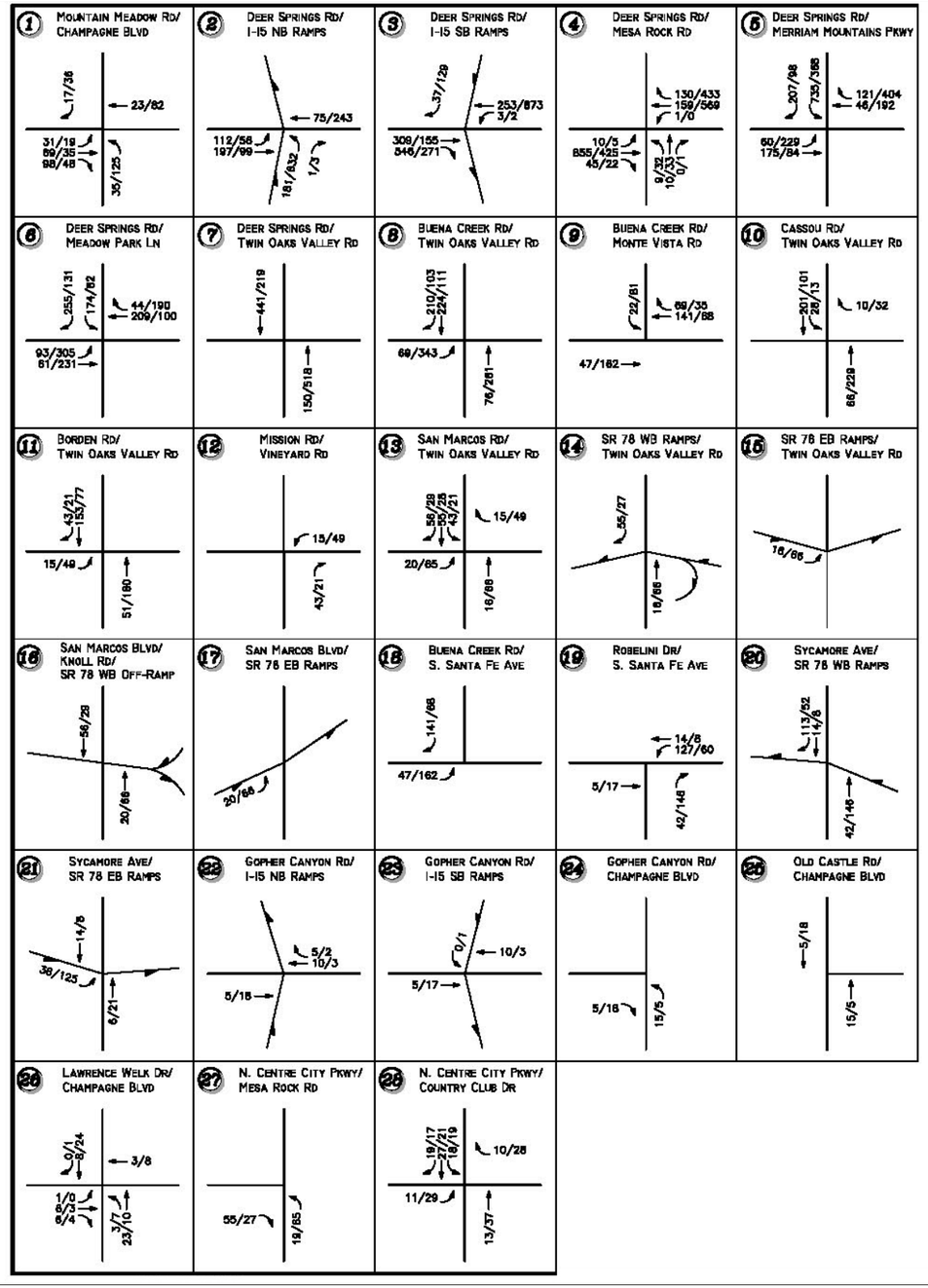
SOURCE: LINSCOTT LAW GREENSPAN, December 2008

Regional Distribution Commercial Land Uses

FIGURE 2.2-6

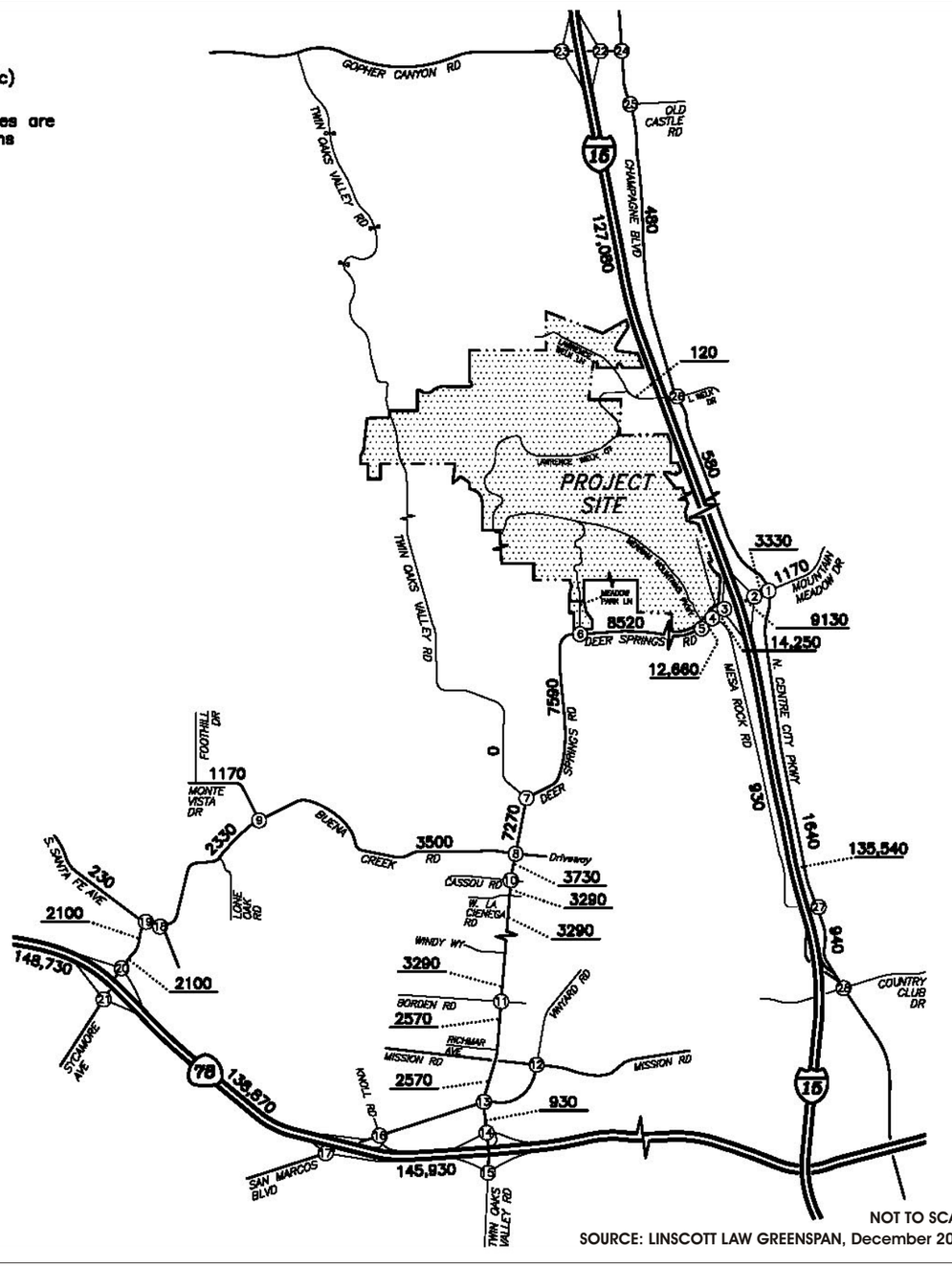
MERRIAM MOUNTAINS SPECIFIC PLAN EIR

N



NOTES:

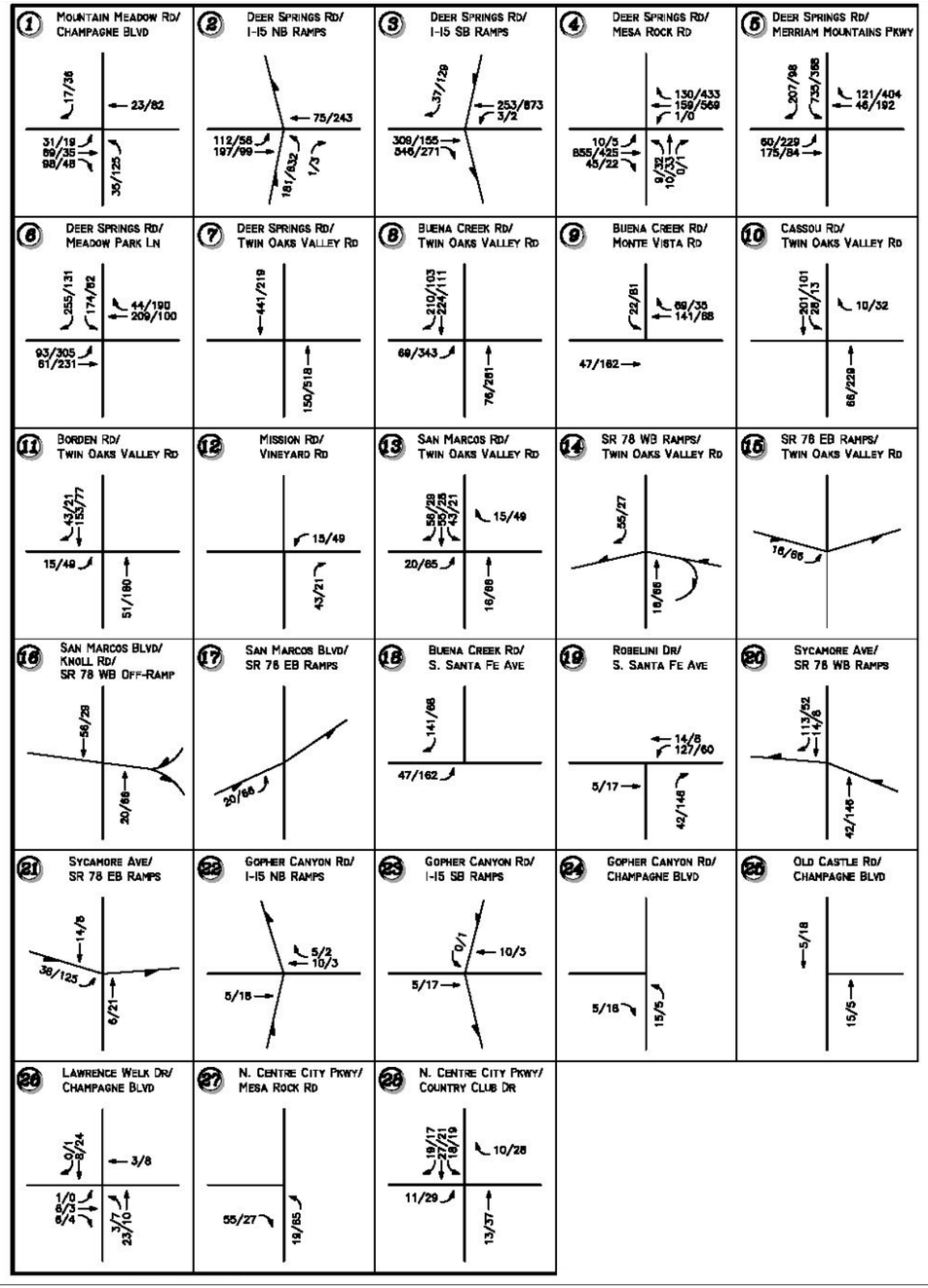
- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections



Project Traffic (Residential) AM/PM Peak Hours & ADT

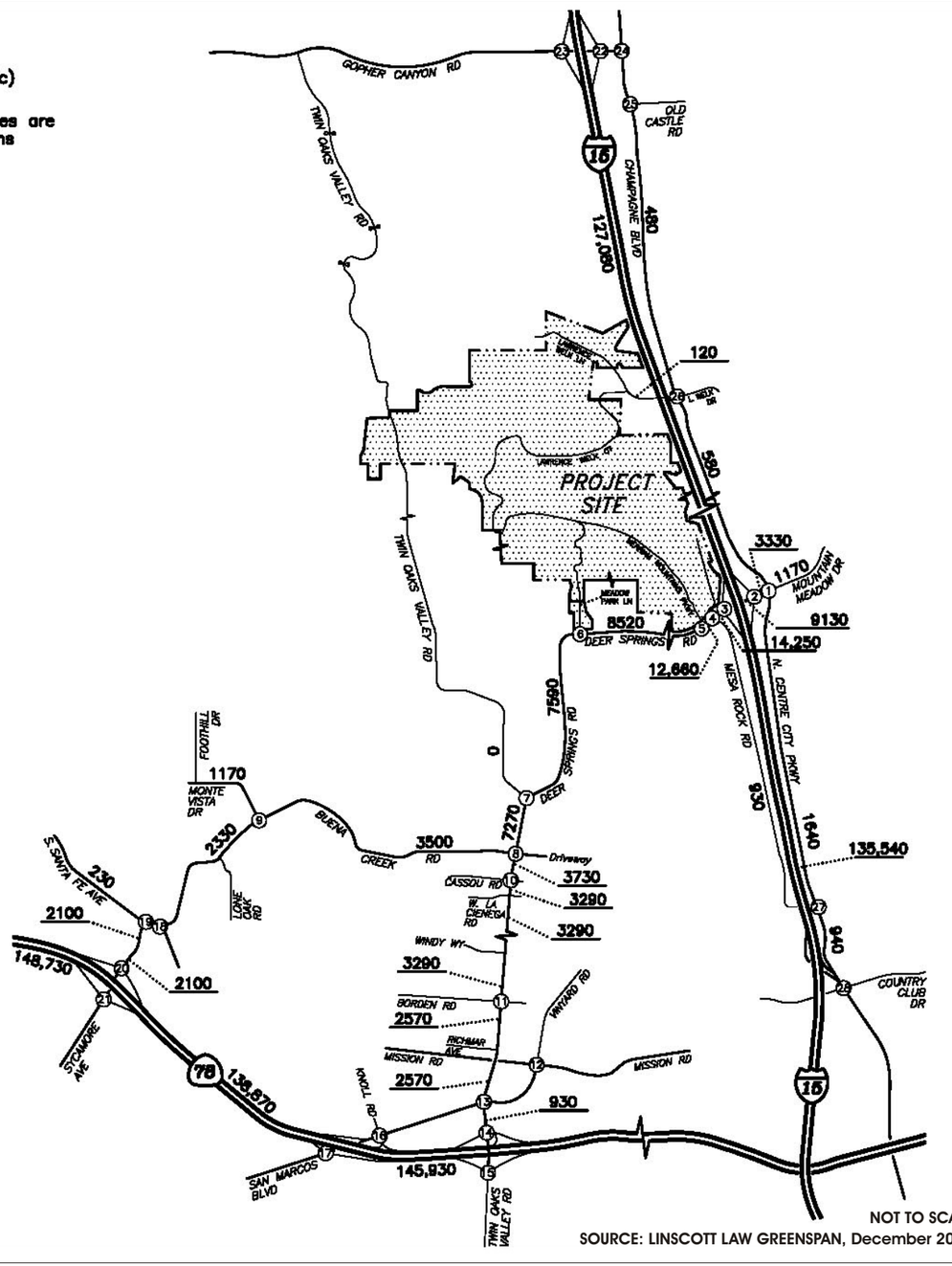
FIGURE 2.2-7

MERRIAM MOUNTAINS SPECIFIC PLAN EIR



NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections



NOT TO SCALE

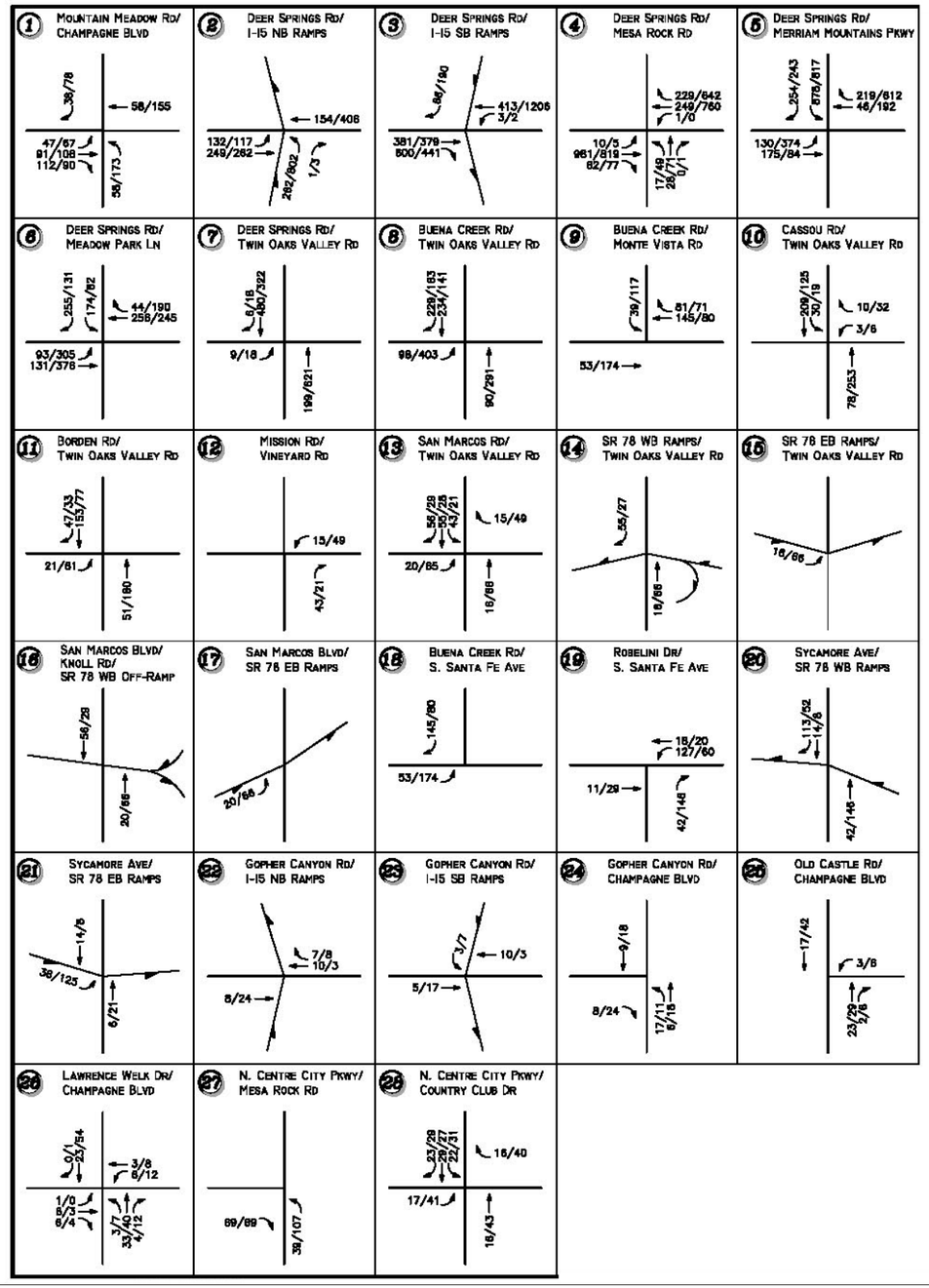
SOURCE: LINSCOTT LAW GREENSPAN, December 2008

Project Traffic (Commercial) AM/PM Peak Hours & ADT

FIGURE 2.2-8

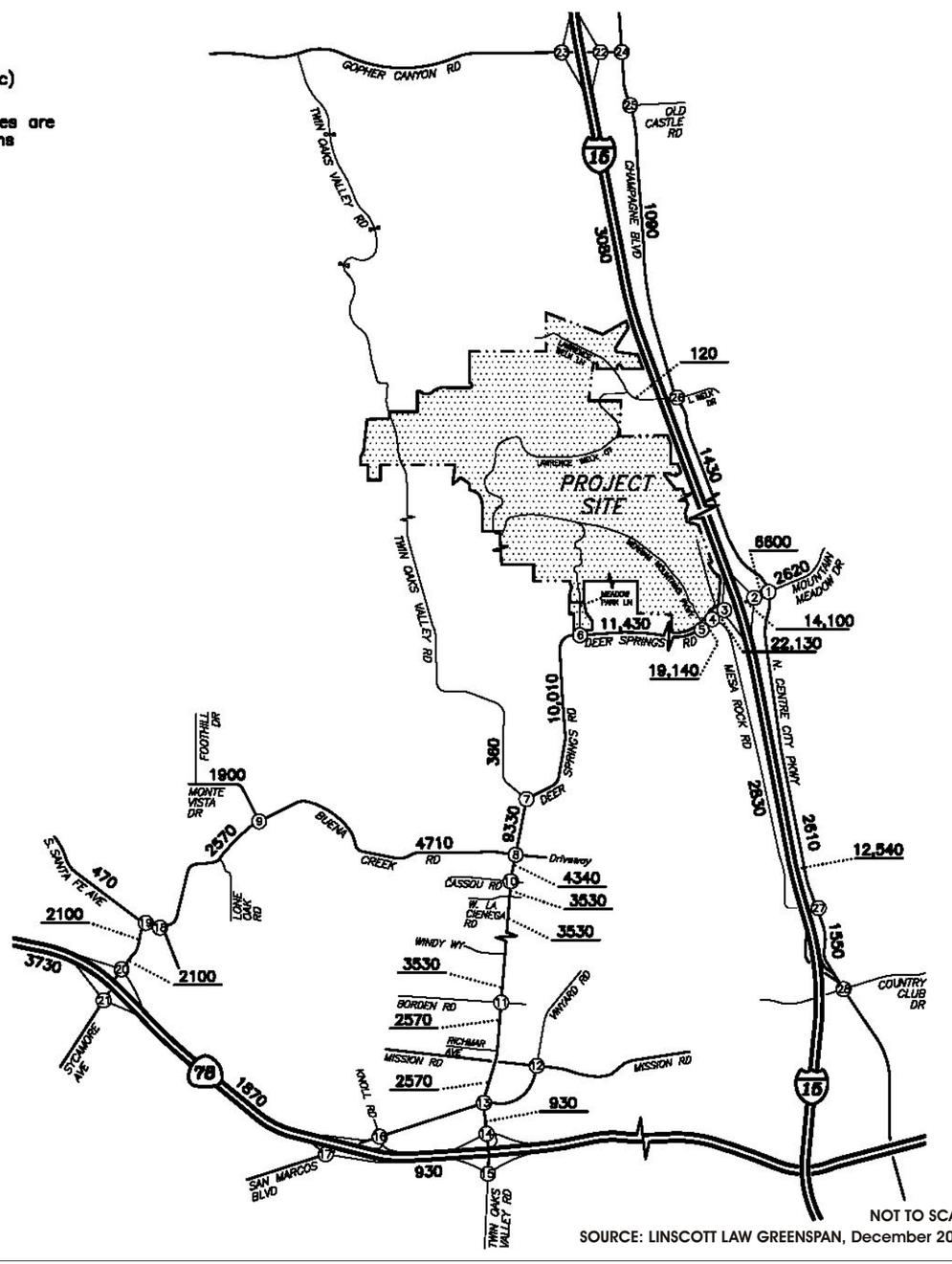
MERRIAM MOUNTAINS SPECIFIC PLAN EIR

N



NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections



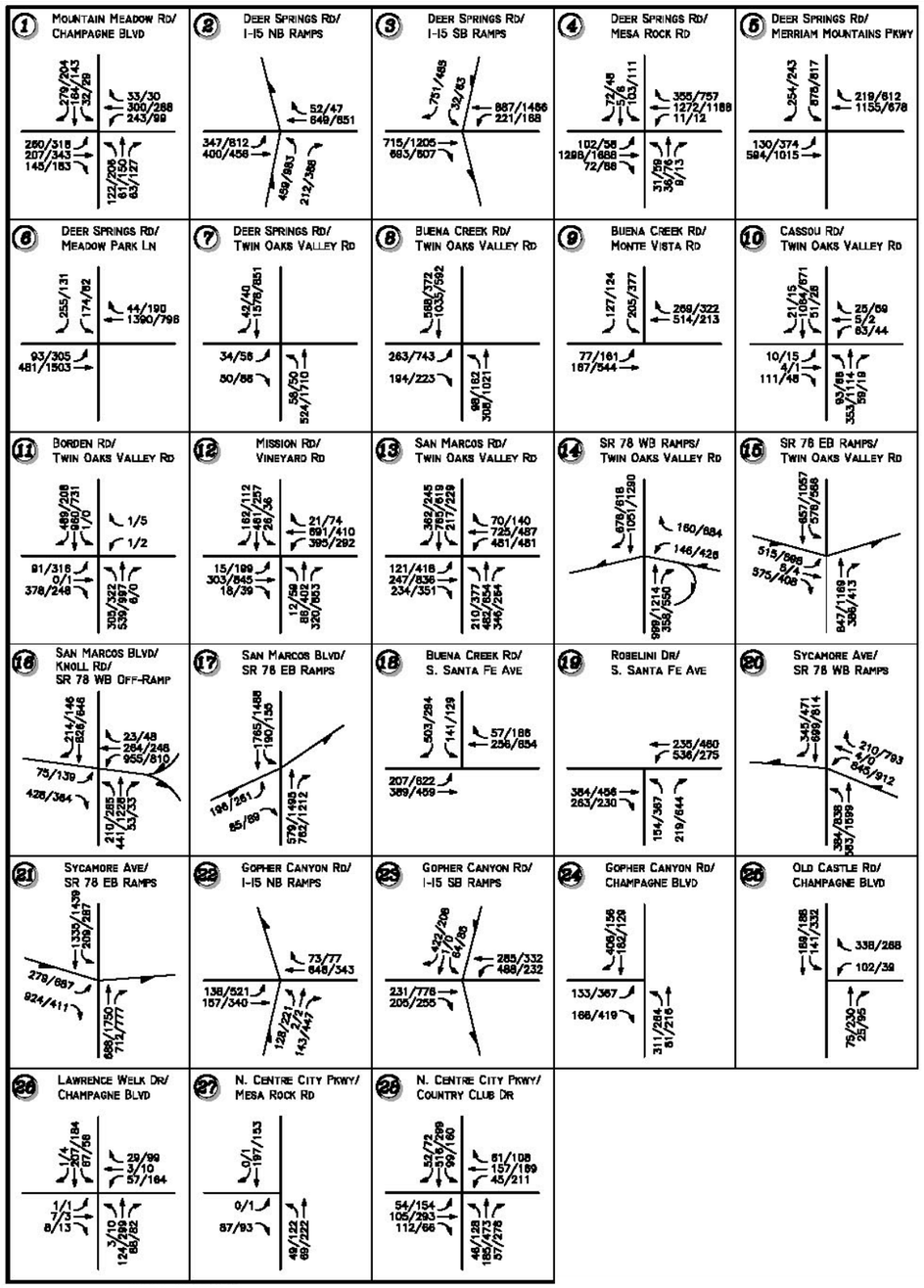
NOT TO SCALE

SOURCE: LINSCOTT LAW GREENSPAN, December 2008

Total Project Traffic Volumes AM/PM Peak Hours & ADT

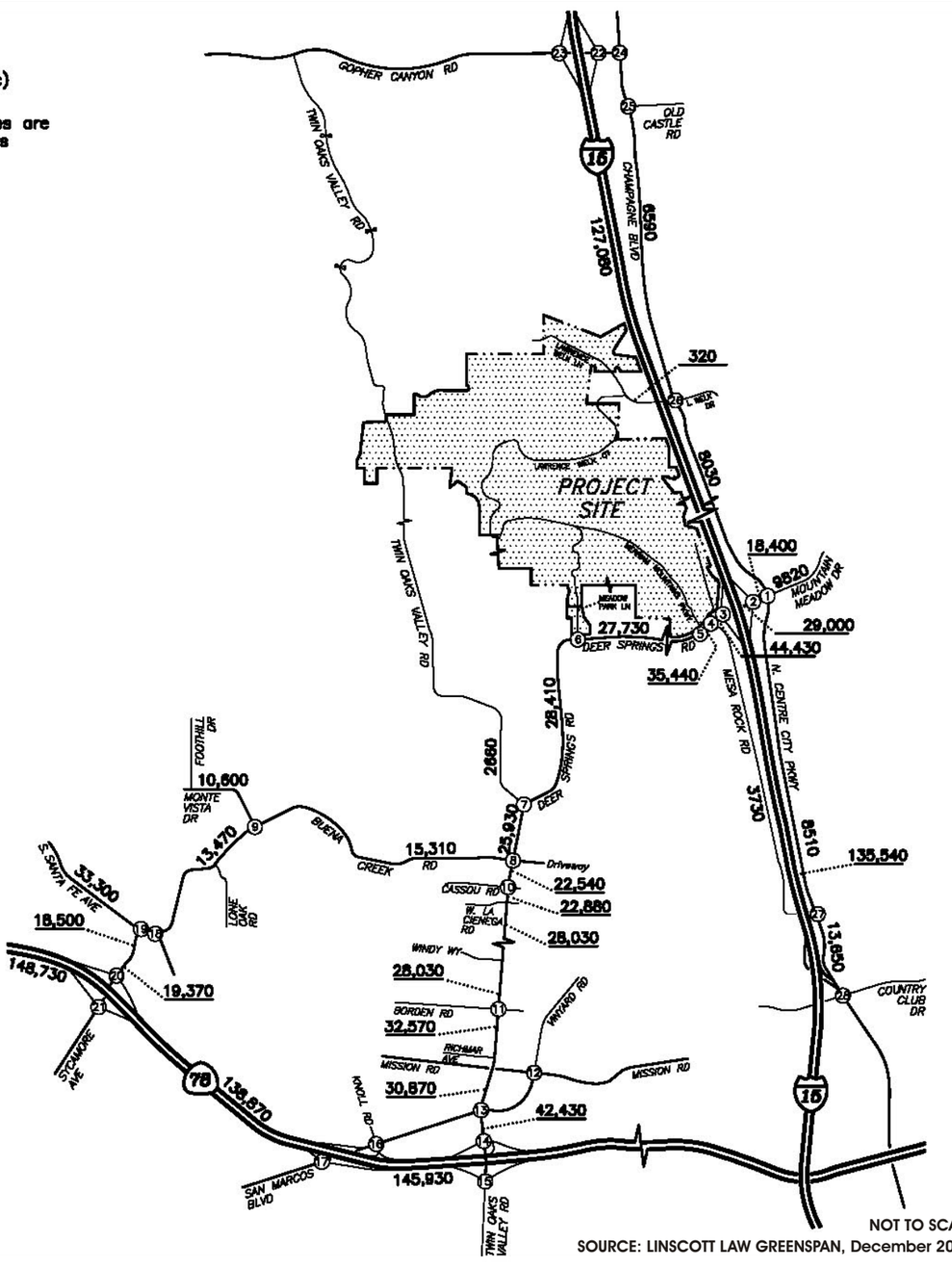
FIGURE 2.2-9

MERRIAM MOUNTAINS SPECIFIC PLAN EIR



NOTES:

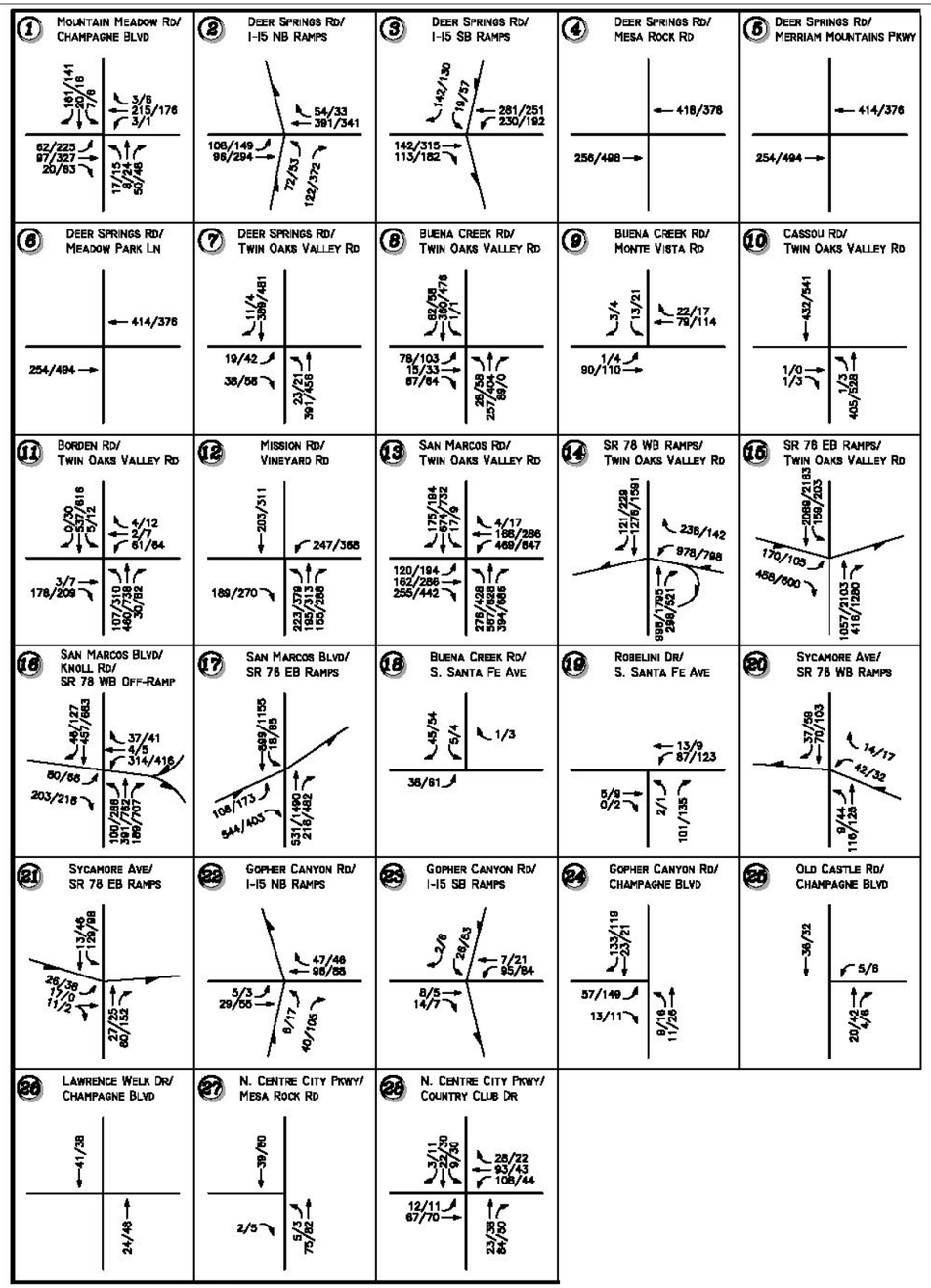
- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections



Existing+Project Traffic Volumes AM/PM Peak Hours & ADT

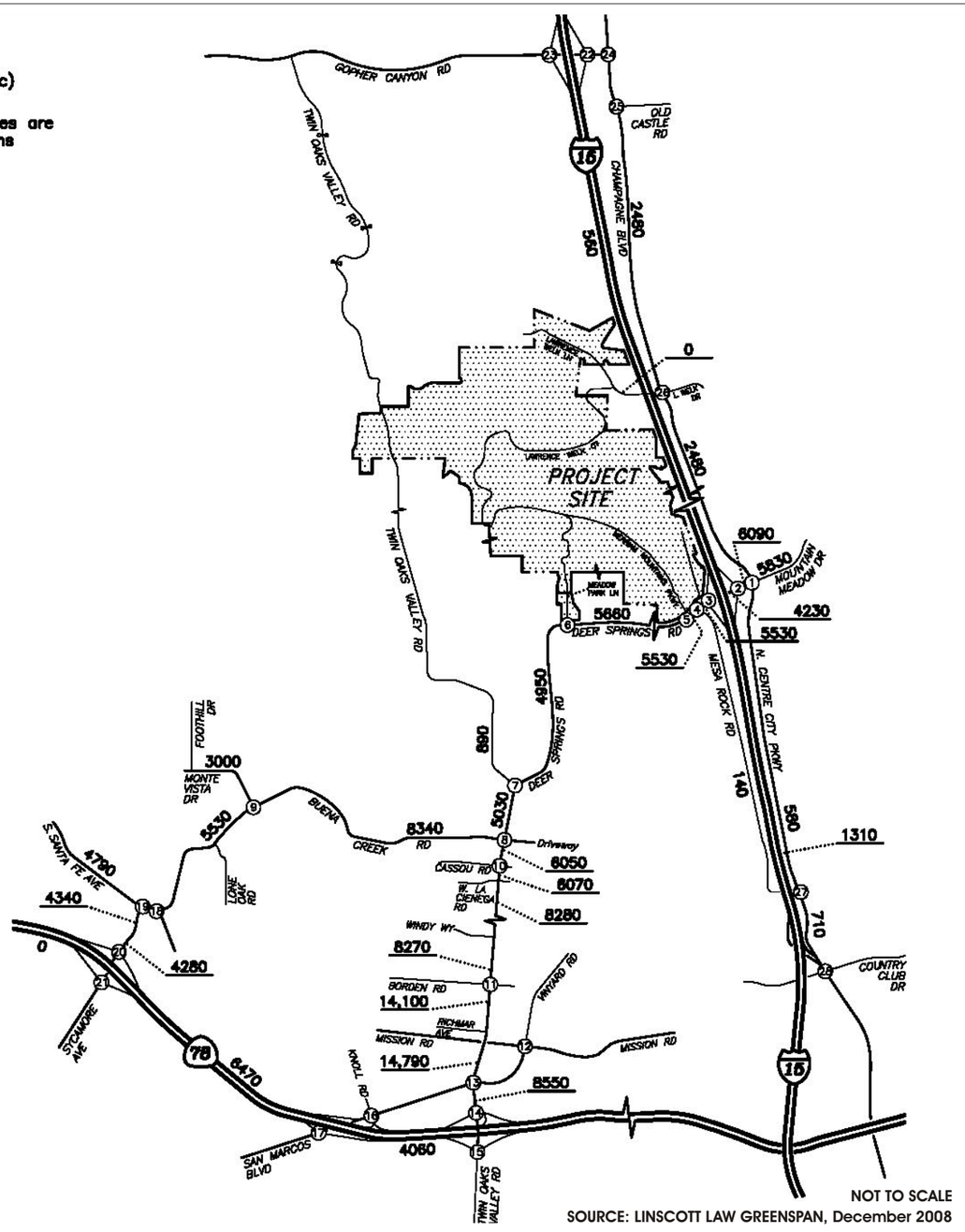
FIGURE 2.2-10

MERRIAM MOUNTAINS SPECIFIC PLAN EIR



NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections

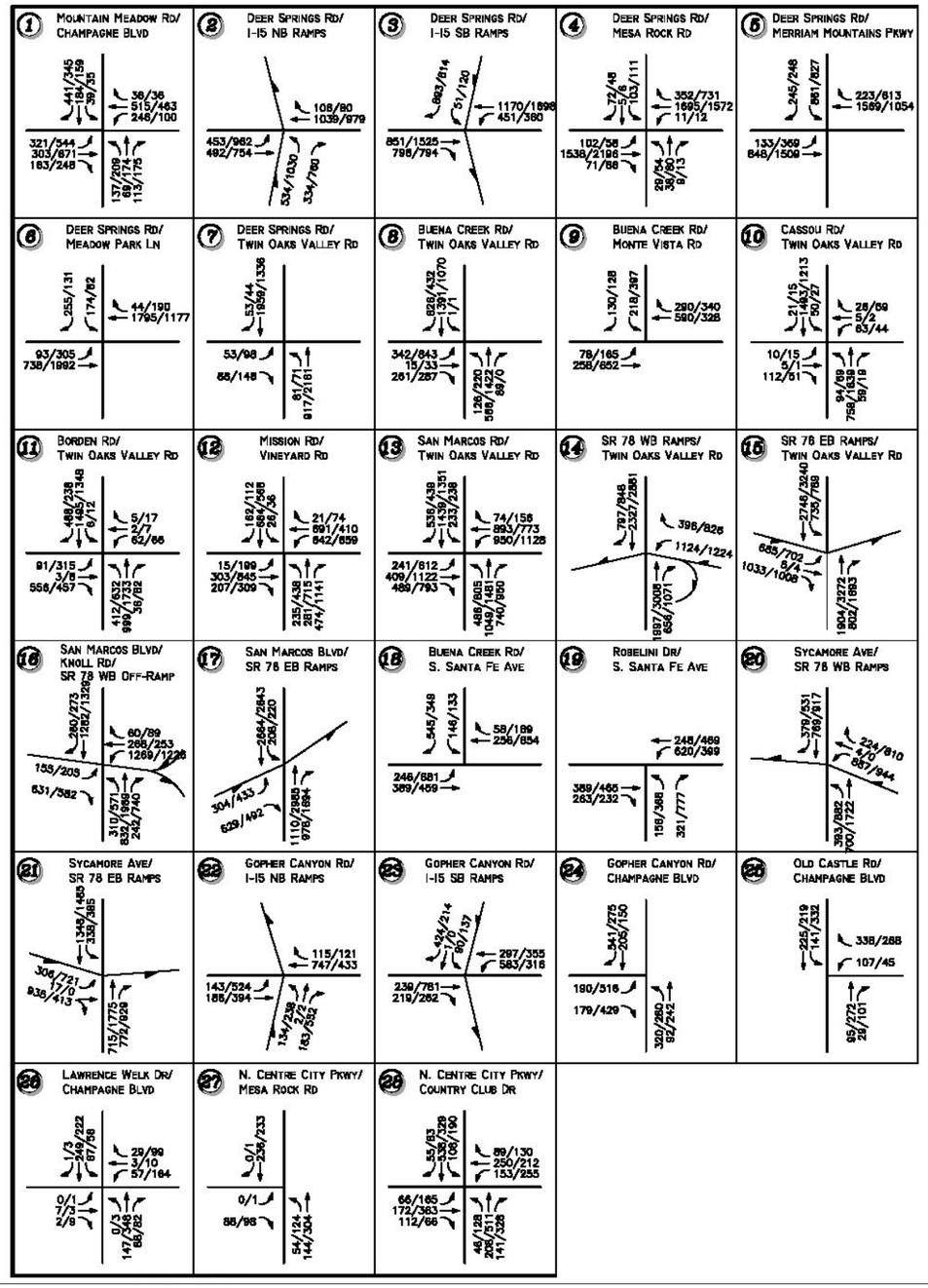


Cumulative Projects Traffic Volumes AM/PM Peak Hours & ADT

FIGURE 2.2-11

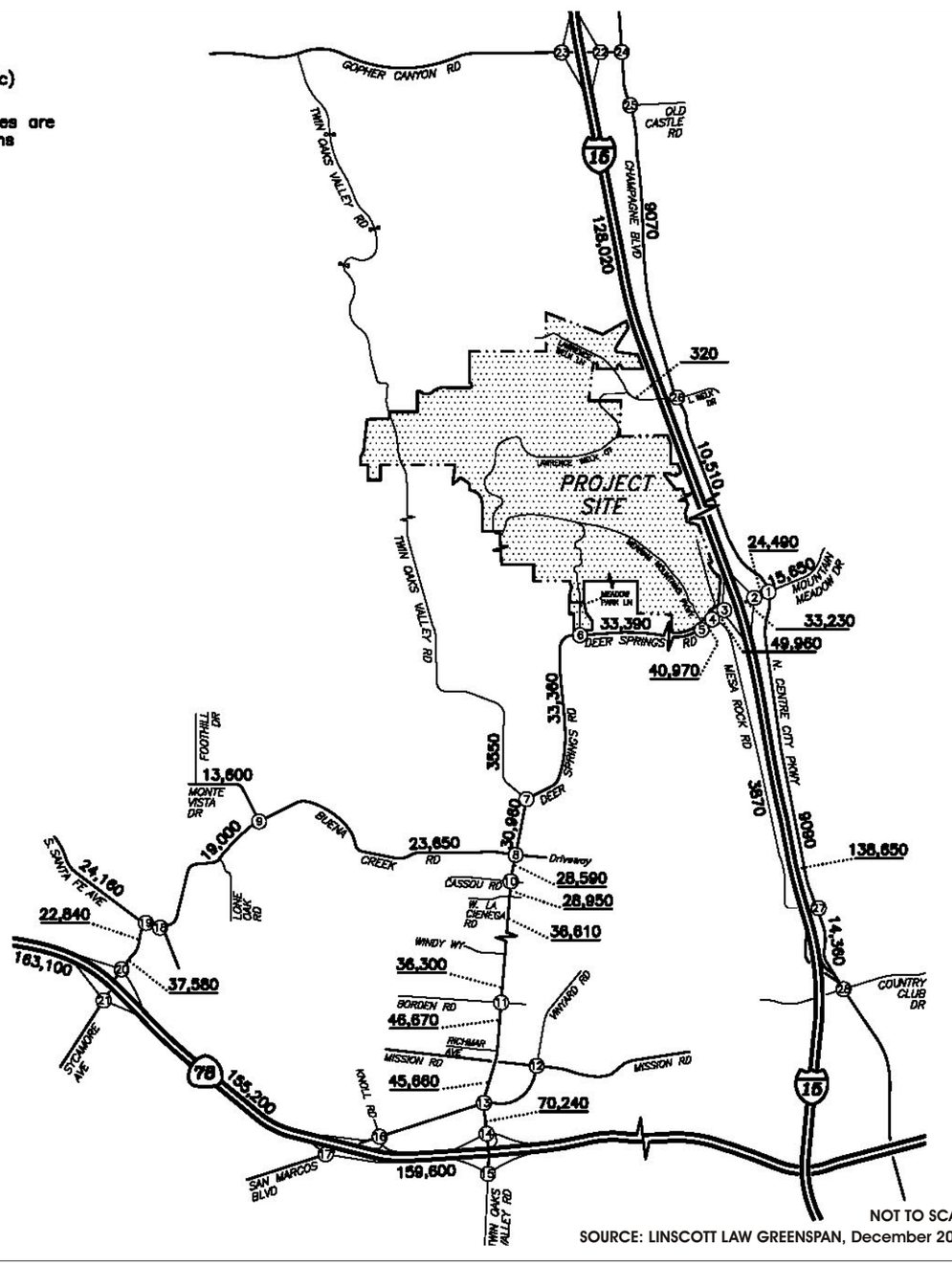
MERRIAM MOUNTAINS SPECIFIC PLAN EIR

N



NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections



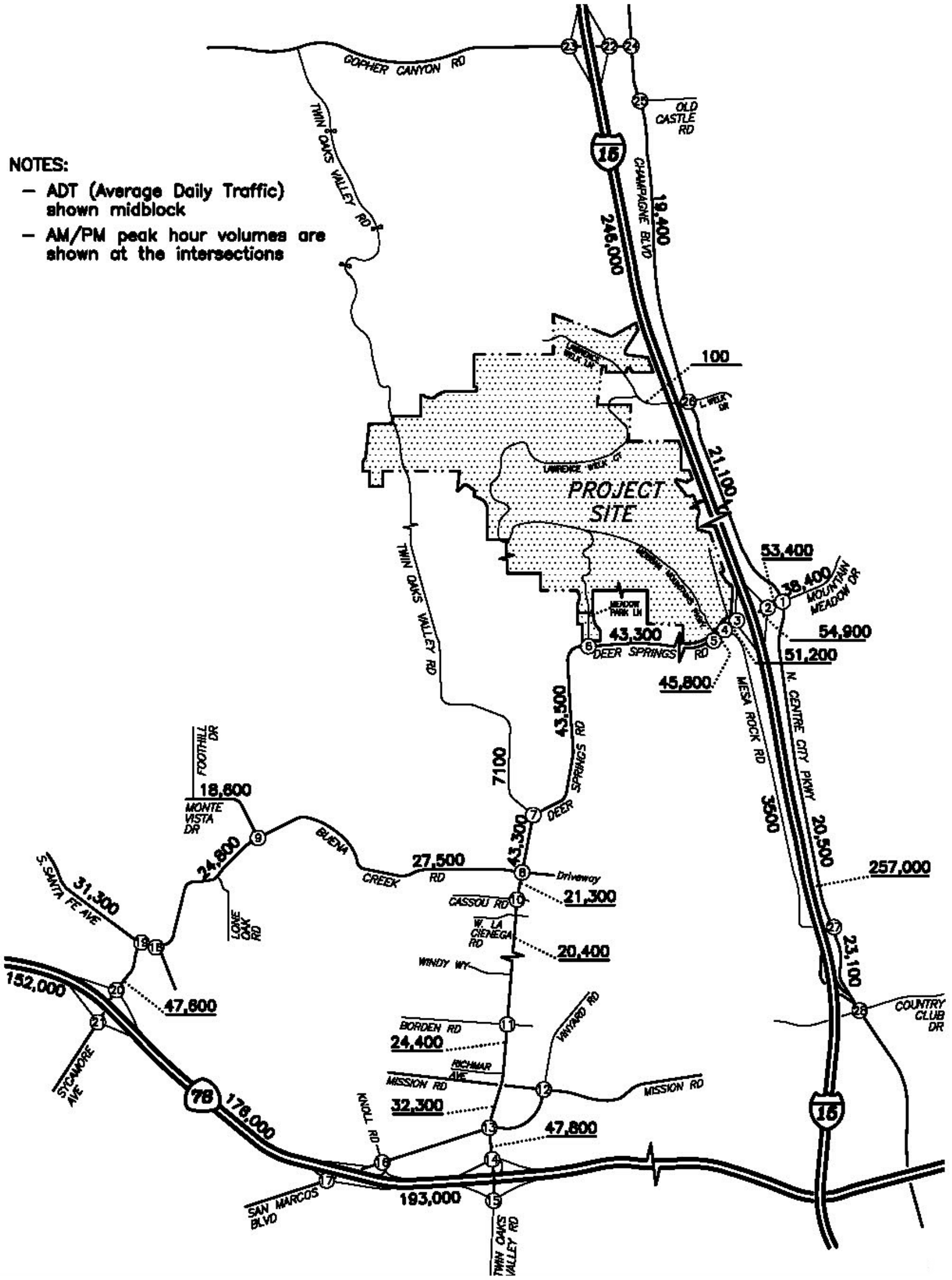
Existing+Project+Cumulative Projects Traffic Volumes AM/PM Peak Hours & ADT

FIGURE 2.2-12

MERRIAM MOUNTAINS SPECIFIC PLAN EIR

NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections



NOT TO SCALE

SOURCE: LINSCOTT LAW GREENSPAN, December 2008

Year 2030 with Existing General Plan Project Land Uses

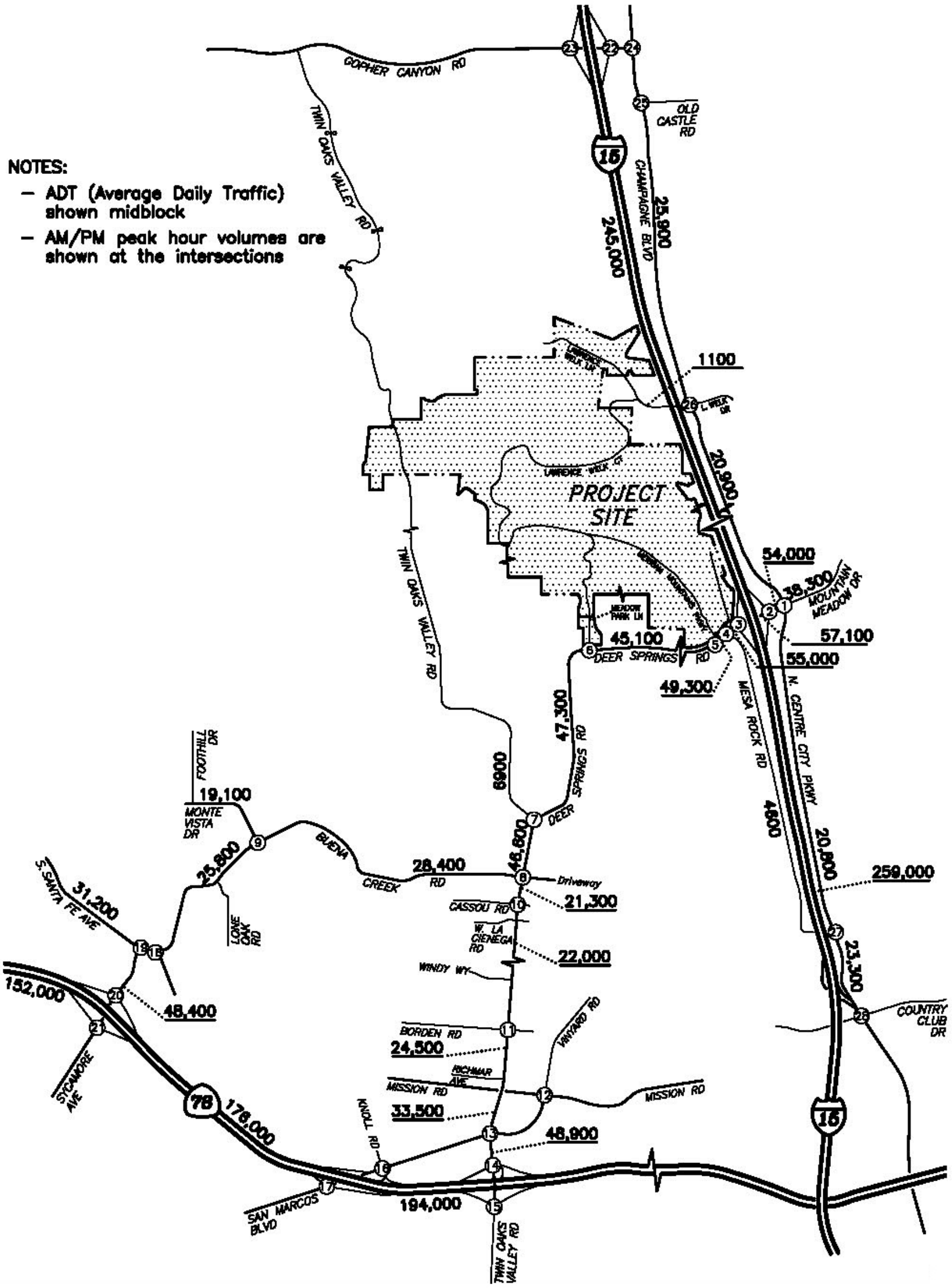
FIGURE 2.2-13

MERRIAM MOUNTAINS SPECIFIC PLAN EIR

N

NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections



NOT TO SCALE
SOURCE: LINSCOTT LAW GREENSPAN, December 2008

Year 2030 with Proposed Project

FIGURE 2.2-14

MERRIAM MOUNTAINS SPECIFIC PLAN EIR

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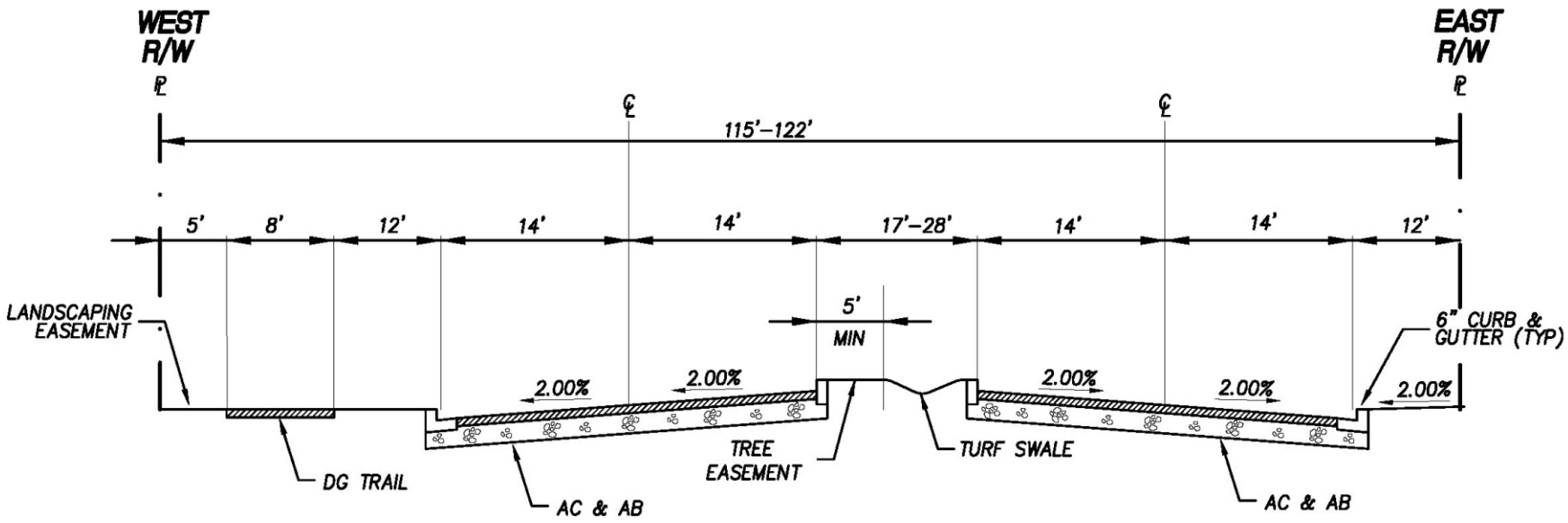
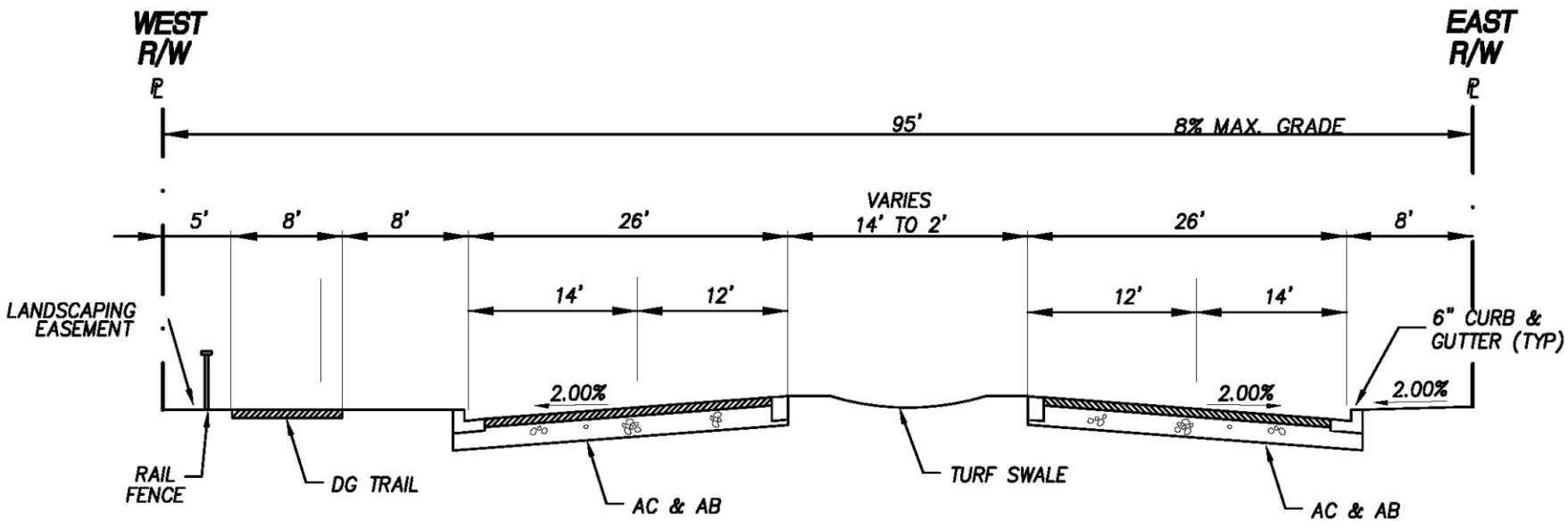


DESIGN CRITERIA:
GP2020 BOULEVARD STANDARD
DUAL 28' DIVIDED ROAD
NON–CIRCULATION ELEMENT 40 MPH DESIGN SPEED
12% MAX GRADE
500 FT MIN RADIUS
NO PARKING

PROPOSED STREET SECTION FOR :

MERRIAM MOUNTAINS PARKWAY– ENTRY AT DEER SPRINGS



DESIGN CRITERIA:
BOULEVARD STANDARD
DUAL 26' DIVIDED ROAD
40 MPH DESIGN SPEED
500' MIN. HORIZONTAL CURVE
8% MAX GRADE
NO PARKING

PROPOSED STREET SECTION FOR :

MEADOW PARK LANE ENTRY AT DEER SPRINGS

SOURCE: FUSCOE ENGINEERING, April 2007

Proposed Street Section of Merriam Mountains Parkway and Meadow Park Lane at Deer Springs Road

FIGURE 2.2-15

N